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# Data Base for Early Postfire Succession on the Sundance Burn, Northern Idaho

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## RESEARCH SUMMARY

Baseline data on herb, shrub, and tree species cover ( $\text{m}^2/0.01 \text{ ha}$ ) and volume of space occupied ( $\text{m}^3/0.01 \text{ ha}$ ) for the first 15 years of secondary succession following wildfire in the western redcedar-western hemlock forest type of northern Idaho are presented in tabular form for 18 study areas on the Sundance Burn. These study areas represent an elevational range from 2,900 to 4,300 feet, all cardinal exposures and a range of slopes from 15 to 45 percent. Descriptive information given for each site includes location, prefire forest cover type, postfire reconstruction of prefire tree and shrub components, and intensity and severity of wildfire disturbance.

Information on early successional development is presented in its basic form without interpretation to provide a quantitative resource for modelers working on the development of secondary forest succession and as a source of information on plant species response to fire and the development of seral vegetation for application to forest and wildlife habitat management problems.

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## INTRODUCTION

Fire has been a natural and integral part of Northern Rocky Mountain coniferous forests for at least the last 10,000 years (Mehring and others 1977; Mutch 1970). Recent studies documenting the recurrence of fire in these forests (Arno 1976, 1980; Arno and Davis 1980; Hemphill 1983) suggest most of the forest plant species have evolved or at least existed in the presence of periodic disturbance by fire (Habeck and Mutch 1973; Howe 1976). In fact, many of these plant species exhibit adaptations to survive burning by forest fires (Lyon and Stickney 1976; Bradley 1984). The natural recovery or secondary succession of forest vegetation in the Northern Rocky Mountains following disturbance by wildfire results from a combination of plant species adapted to survive fire in place and those adapted to colonize the immediate postfire site. Severity of fire treatment (Rowe 1983; Ryan and Noste 1985; Viereck and Schandelmeier 1980) to the prefire vegetation directly influences the composition and amount of the survivor component. It also conditions the suitability of the site for germination and establishment of the colonizer component. The early successional development (1 to 15 years) of vegetation presented for the Sundance Burn study areas encompasses a variety of combinations for these two components that range from communities composed largely of survivors (SD-17, SD-21) to those formed predominantly of colonizers (SD-06, SD-07).

To effectively use secondary forest succession processes in achieving forest management objectives requires a fundamental understanding of the response and behavior of at least the important plant species comprising the early postdisturbance forest communities. Quantitative data on postwildfire changes in species abundance through time not only provide the means for determining natural seral development, but also serve as a basis for comparing and evaluating effects of timber harvest and other forms of cultural disturbance on species maintenance. The response of early seral vegetation to disturbance affects a wide variety of forest management activities including the establishment and survival of transplanted tree seedlings, the composition and duration of big game browse ranges, the amount of vegetative cover affording watershed protection, the character of small mammal and songbird habitats, and the production and accumulation of forest fuels.

As management intensifies to meet the increasing demands made of forest wildlands, some of the potential uses for basic plant successional information include:

- designing silvicultural and fire prescriptions to achieve specific management treatment results
- assessing rehabilitation needs following wildfire and aiding in fire damage appraisals
- evaluating probable vegetation recovery for escaped fire analysis
- assessing effect of fire on vegetation for fuels management planning
- developing fire management prescriptions to restore and maintain fire as a natural process in wilderness forest ecosystems
- constructing, testing, and improving models of secondary forest succession.

Most studies of forest succession in the Northern Rocky Mountains employ synthetic reconstructions of community change derived from sampling forest stands of different ages. This approach describes forest succession as it is perceived rather than as it is observed to occur. Inherent variability in initial composition and previous history of stands combined with fragmentary representation of time (stand ages available) provide interrupted and incomplete representations of species' presence and development, which permit only the most generalized reconstruction of forest succession. Also, lack of a continuous record of onsite changes in composition and development prevents recognition of coherent species development patterns that collectively constitute the successional sequence. This is particularly true for the plants that form the initial vegetation following disturbance and the herbs and shrubs that later comprise most of the early seral vegetation. Analytical presentation of most forest succession data for our region obscures its basic quantitative character and thus precludes its direct application to other wildland management problems.

The purpose of this publication is to make basic data on secondary plant succession available in a form that has wide application to the problems associated with the early stages of forest succession development. The results serve as a data base for examining the initial occurrence, response, and development of individual species following wildfire. Cover (crown area) and aerial crown volume (volume of space occupied) of tree, shrub, and herb components were sampled annually on permanent plots following wildfire in standing timber and clearcuts. The tabular presentation of data represents the first 15 years of secondary plant succession on 18 study areas in the Sundance Burn in northern Idaho.

## STUDY AREA

On September 1, 1967, the Sundance Fire burned a 16-by 5-mile (26-by 8-km) swath northeastward across the central portion of the Selkirk Range in northern Idaho (fig. 1). The study location is centrally situated within the burn where the fire reached "fire storm" proportions (Anderson 1968). This locale is on the Sandpoint Ranger District, Kaniksu National Forest (lat. 48°34' N., long. 116°37' W.) 20 miles (32 km) north of Sandpoint, ID. Specific location within the Pack River drainage of the 18 study areas is shown in figure 2. Elevation of these study areas ranged from 2,950 to 4,300 feet (900 to

1 310 m) and the areas represent all cardinal exposures.

The climate is characterized by long, cool, but not cold, moist winters and short, warm, and dry, but not particularly droughty summers (Finklin 1983). Annual precipitation is estimated between 40 to 60 inches (102 to 152 cm) (Rice 1971) with about three-fourths falling as snow. Topography of the mid- and lower slopes of the Pack River Valley has been rounded and smoothed by mountain glaciation (Alden 1953). Soil is regosolic in character with silt loam texture developed from granitic tills overlain by a loess mantle 6 to 30 inches (15 to 76 cm) thick (USDA Forest Service, n.d.).

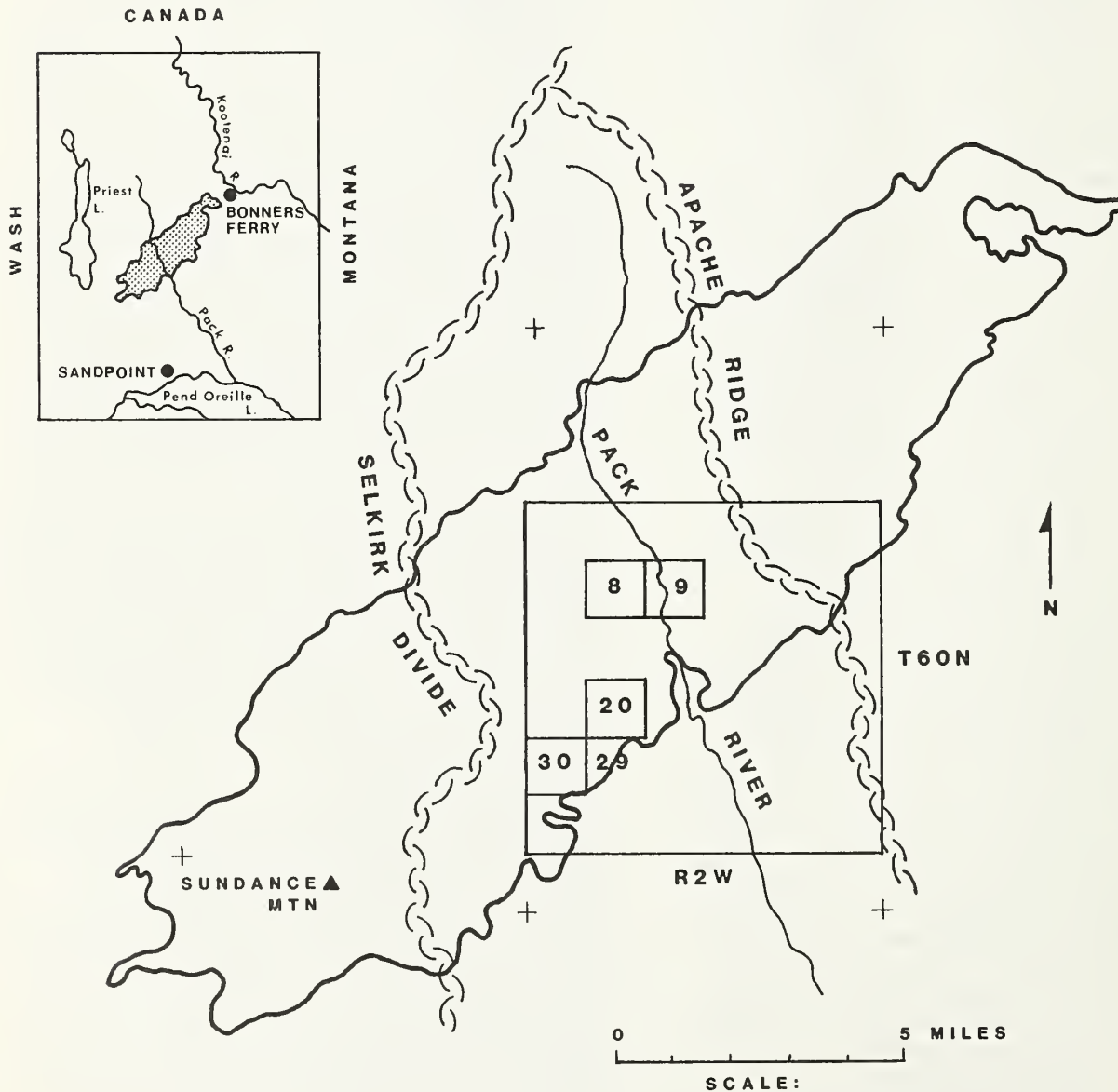


Figure 1.—Sundance Fire in the Selkirk Range of northern Idaho showing the township and section locations containing study area sites.

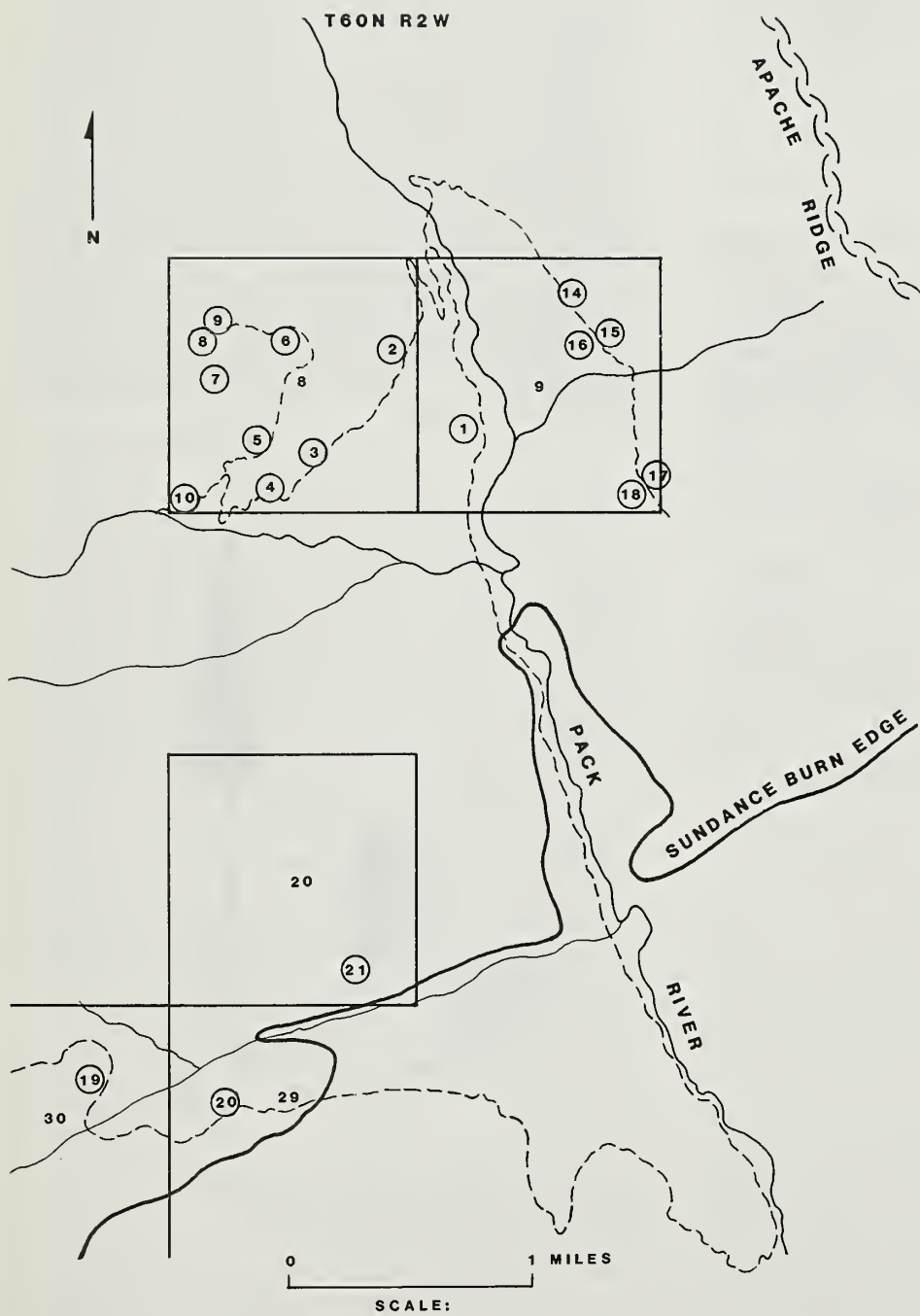


Figure 2.—Sundance Burn study area locations in the Pack River drainage of the Selkirk Range.



Prefire forests on the study areas predominantly contained immature poletimber size trees, 5 to 9 inches (12.7 to 22.6 cm) diameter at breast height (d.b.h.), of the western larch (*Larix occidentalis*) and Douglas-fir (*Pseudotsuga menziesii*) timber types. Most tree crown canopy coverage ranged from 40 to 70 percent (USDA Forest Service 1962). Other timber types represented include mature sawtimber, >9 inches (>22.6 cm) d.b.h., of western redcedar (*Thuja plicata*) and western hemlock (*Tsuga heterophylla*) in the 70 to 100 percent tree canopy cover class. Postfire approximation of forest habitat types suggests that study areas were in the *Thuja-Tsuga* climax forest zone (Daubenmire 1952), and all but the most xeric sites represent the *Tsuga heterophylla*-*Pachistima myrsinites* habitat type (Daubenmire and Daubenmire 1968).

## METHODS

The successional development of vascular plant species was measured on permanent plots using nondestructive sampling techniques. This approach attempts to quantify actual changes in vegetation as they develop in place over time, thereby minimizing extraneous variation in time development of plant species composition and abundance. All plot sampling measurements were metric.

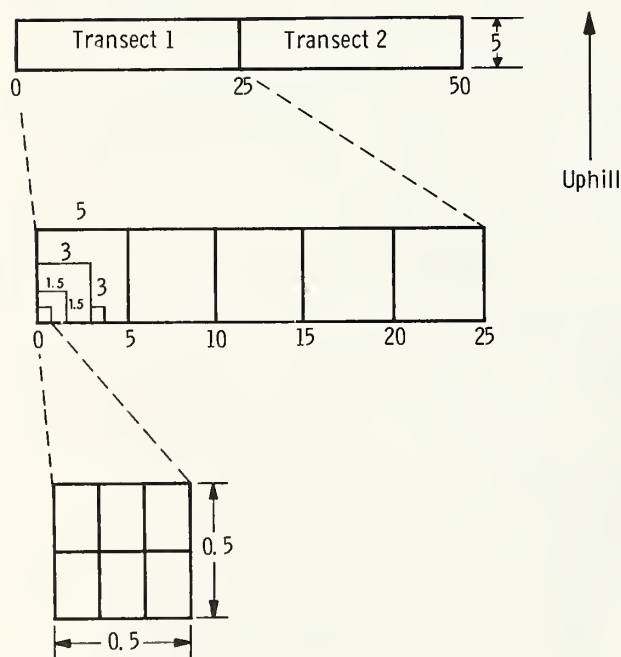


Figure 3.—Field layout of permanent transect pairs showing position and orientation of contiguous blocks and nested plots (dimensions in meters).

## Plot Layout and Vegetation Sampling

The area sampled for each study area consisted of two 5- by 25-m transects, each of which was divided into five contiguous 5- by 5-m blocks (fig. 3). The vegetation was stratified in each block according to life form and height and sampled in four sizes of nested plots (fig. 4). The combination of plant heights and life form associated with each nested plot is given in table 1.

Trees and shrubs over 0.4 m high were sampled on the three larger plots (1.5-, 3-, and 5-m squares). For trees 2.5 m and taller, the d.b.h. (height 1.4 m) was measured in centimeters and recorded by species. Trees 1.5 to 2.5 m high were counted and recorded by species and assigned an assumed d.b.h. of 1.25 cm. Trees 0.5 to 1.5 m in height were counted and recorded by species. All shrubs and trees 0.5 m and taller were measured in decimeters for two horizontal dimensions of the aerial crown and the height above the rooted point.

Herbaceous and low woody plants (including trees and shrubs less than 0.5 m in height) were sampled in two 0.5- by 0.5-m plots located along the baseline within each block (fig. 4). Cover was determined visually by species in units to the nearest one-sixth of the plot, 0.04167 m<sup>2</sup> (fig. 3). Species with individual coverages of less than one-sixth were recorded as miscellaneous vegetation for that plot if they collectively totaled at least one-sixth of the plot area.

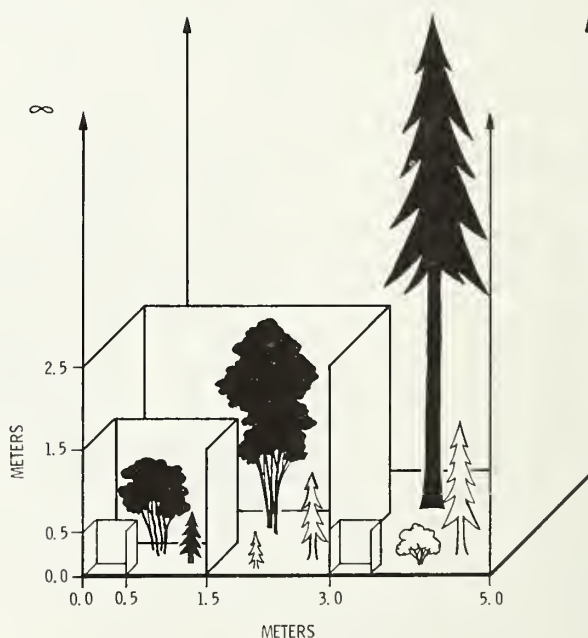


Figure 4.—Height limits of shrubs and trees sampled in nested plots (sample plants, shaded; nonsample plants, outlined).



Table 1.—Summary of plots sampled on each study area

Plot size	Height limits	Vegetation sampled	No./area
----- Meters -----			
5 by 5	2.5+	Trees and shrubs	10
3 by 3	1.5–2.45	Trees and shrubs	10
1.5 by 1.5	0.5–1.45	Trees and shrubs	10
0.5 by 0.5	<0.5	Trees and shrubs and all herbs and low woody plants irre- spective of height	20

The remaining ground surface not covered by herbaceous or low woody plants was then similarly classified in order as: (1) moss, (2) litter, (3) rock, and (4) bare ground. Cover estimates for this plot were designed to equal 100 percent; therefore coverage values of these four categories represent only that portion not covered by herbaceous or low woody vegetation. The “representative” height within the plot for each species receiving a cover estimate was measured to the nearest half decimeter. Occurrence (absolute frequency) was recorded for each herb and low woody plant species present within this smallest plot. Field sampling for most years was done during the latter part of July through the first half of August.

## Vegetation Description

Five attributes descriptive of vegetation can be derived from this sampling method (table 2). Of these, cover (aerial crown area) and crown volume (space occupied by the plant) are considered the most descriptive for representing the early seral development of vegetation. Cover for tree and shrub species was computed using the horizontal crown dimensions as axes of an ellipse. Crown area for herbs and low woody plants was estimated directly in units of cover. Aerial crown volume for trees and shrubs was determined for each individual plant from its crown area and height. The product of these values gives the volume of a cylindroid representing the space occupied by the plant in the community. Similarly, the volume of space occupied by herbs and low woody plants was calculated from the area and representative height. Cover and volume values were averaged by species for each plot size, converted to 0.01 ha base and totaled to produce the tabular value given for each species and life form group. Because this

Table 2.—Attributes describing vegetation development

Vegetative life form	Attribute
Trees (1.5+ m ht)	Density (N/0.01 ha) Basal area (cm <sup>2</sup> /0.01 ha)
Shrubs and trees (0.5+ m ht)	Density (N/0.01 ha) Cover (m <sup>2</sup> /0.01 ha) Crown volume (m <sup>3</sup> /0.01 ha)
Herbs and low woody plants (including tree and shrub species <0.5 m ht)	Frequency (percent) Cover (m <sup>2</sup> /0.01 ha) Crown volume (m <sup>3</sup> /0.01 ha)

base equals 100 m<sup>2</sup>, the values given for cover in the tables may be read directly as percentage of ground cover as well as m<sup>2</sup>/0.01 ha. Tabular values for volume are expressed as m<sup>3</sup>/0.01 ha.

Height, while not presented as tabulated information, may be obtained for any given species from the quotient of its corresponding volume and cover values. The result is mean height in meters. This expression of vertical development can be used to identify the periods required for woody plant species to reach and sustain mature stature in the successional progression.

Nomenclature for vascular plants follows Hitchcock and Cronquist (1973). Plant species identifications were made by the author with verification of many of the species by Drs. Frederick J. Hermann and Charles Feddema, both of the former USDA Forest Service Herbarium at Washington, DC, and later Fort Collins, CO. Voucher specimens for most species are on file at the Forestry Sciences Laboratory Herbarium (MRC), Missoula, MT.

## DATA BASE

The data base documents the initiation and early development of seral vegetation for 18 study areas in the “cedar-hemlock” type of northern Idaho. For each study area the data base consists of (1) initial postfire plant species composition, (2) subsequent cover and volume development of vegetation and cover plant species, (3) physical site characteristics, (4) disturbance treatment from wildfire, and (5) representation of prefire vegetation and its species composition.

## Initial Vegetation

Species present in the first postfire growing season represent the initial vegetation (appendix) and provide the floristic basis from which the development of early seral vegetation commences. The response to fire of species comprising this initial vegetation is classified in the appendix as either survivor (regrowth or resprouts from burned plants) or colonizer (first-year seedlings). For those species that demonstrated more than one response or adaptation to fire, both are given. In a few instances the charred remains of herbaceous plants were identifiable, and where all plants of a given species on a study area were killed, they are listed as “nonsurvivor.” The ability of a plant species to survive fire varies and is related (in part) to the severity of the burning treatment. For this data base those species classified “survivor” demonstrated the capability to survive a fire treatment as severe as a stand-replacing wildfire.

This classification also provides some information on the source or postfire origin of the initial vegetation species. Survivors derive from burned onsite origins. Colonizer origin may be either on site or from outside the burned area. Seed form as related to dispersibility may provide clues as to colonizer origin. The potential for secondary colonization of species from onsite sources is related to its capacity to flower early in succession. Species flowering in the first postfire growing season from either survivor or colonizer plants are indicated in the appendix.



## Succession Data Base Tables

For each study area, cover and volume data are presented in a series of six data base tables. Each table is accompanied by a graph illustrating its important elements. Tables 1 and 2 present cover and volume respectively of the seral community life forms; tables 3 and 4 present species composition for cover within life form component; and tables 5 and 6 present volume. Identity of species listed in these tables as four-letter abbreviations of genus and species is given in the appendix.

A few species included in the herb data base tables have often been treated as shrubs. In fact, they are "low woody plants" and lack the morphological traits characteristic of shrubs except one, the presence of perennial stems above ground in the dormant season. Their life form relegates them to the ground layer vegetation rather than the shrub strata above the forest floor. Species treated as low woody plants in the herb tables are *Berberis repens* and *Pyrola secunda*.

## Site and Treatment Information

To facilitate communication between users and application of future results the succession data base is referenced to research study 1802-16 of Research Work Unit FS-INT-1705, Forestry Sciences Laboratory, Missoula, MT. Study areas are designated SD-01 through SD-10 and SD-14 through SD-21.

Succession data for each study area are supplemented by a reference section containing information on location, site features (elevation, exposure, and slope), prefire vegetation, and disturbance treatment. Information on prefire vegetation consisted of a timber inventory (USDA Forest Service 1962). Inventory types provided a general characterization of composition, size, and coverage of the predominant or potential (for unstocked sites) prefire tree overstory. A reconstruction from the charred remains of shrubs and trees evident in the first postfire growing season served to further characterize the woody plant component of the prefire vegetation. Tree density and stand basal area were approximated from a sample in the first postfire year of all standing snags in the 5-m square plots. Snag d.b.h. was measured in centimeters. Coniferous snags were sampled as a general entity and therefore not identified as to species. Relative density of surviving shrub species was determined by a count of all resprouting shrubs at least 0.5 m high in the 5-m square plots. Information on prefire shrub species composition was further extended by noting those species regrowing within but not sampled in the 5-m square plots as well as in the vicinity immediately adjacent to these plots. These unsampled prefire species are listed as "other species present." Nonresprouting charred shrub remnants were not sampled; thus, the reconstruction provides only a minimum representation of the prefire shrub community. Species composition for the prefire herbaceous component is not presented, but a minimal approximation of the prefire composition can be obtained by noting the survivor and nonsurvivor species designated for each study area in the appendix.

Information providing an indication of the conditions from which the development of secondary forest succession commenced include evidence of prefire timber cutting and fire disturbance. From postfire observation, prefire overstory appeared undisturbed by cutting or logging except for the two instances noted. Time since cutting was undetermined.

Wildfire disturbance of study areas is described by fire intensity, rate of heat released at the fire front (Albini 1976; Viereck and Schandelmeier 1980), and fire severity, heating sustained by the site (Ryan and Noste 1985). Fire intensity data from Anderson's (1968) reconstruction of the Sundance Fire provides a measure of fire disturbance to the forest vegetation. All values reported by Anderson greatly exceed the minimum limit for high intensity fire defined by Sando (1978) as average intensity greater than 1,200 Btu/sec/ft. Fire severity is more indicative of the disturbance treatment sustained by the vegetation (Rowe 1983) because it incorporates the downward heat pulse to ground layer vegetation and propagules and adventitious buds in the forest floor and soil (Ryan and Noste 1985), as well as the upward heat pulse (fire intensity) to vegetation. Ryan and Noste's (1985) fire severity matrix provides a relative standard that permitted postfire assessment of severity drawn from the degree of ground char and flame length. The matrix comprises four ground char classes (U = unburned; L = light; M = moderate; D = deep) and five flame length classes (1 = 0-2 ft; 2 = 2-4, 3 = 4-8; 4 = 8-12; 5 = >12). Ryan and Noste's fire severity index ranges from 1-U (least severe) to 5-D (most severe). As an example, a fire rated at a severity of R-N index 5-M represents a burning treatment with a flame length exceeding 12 feet and moderate ground char; i.e., duff completely consumed to mineral soil, logs deeply charred, lateral tree roots pedestaled. Observed immediate postfire condition of the forest floor—litter and duff layers (USDA Forest Service 1956)—and tree or shrub overstory are included to permit reference with other indices of fire severity.

## SUMMARY OF STUDY AREA CHARACTERISTICS

Site characteristics represented in the succession profiles for the 18 Sundance Burn study areas include physical site features, predisturbance vegetation, and disturbance type (table 3).

The physical characterizations of site are elevation, exposure of slope, and steepness of slope. The number of study areas falling within each 500-foot (150-m) contour interval is:

No. of study areas	500-foot (150-m) interval
1	2,500 to 3,000 feet
5	3,000 to 3,500 feet
6	3,500 to 4,000 feet
6	4,000 to 4,500 feet

Table 3.—Sundance study area site characteristics

Study area	Elevation	Exposure		Slope	Cover type <sup>1</sup>	Tree size <sup>2</sup>	Overstory cover class	Disturbance treatment <sup>3</sup>
	<i>Ft</i>	<i>Dir.</i>	<i>Az°</i>	<i>Pct</i>	<i>spp.</i>		<i>Percent</i>	
SD-01	2,950	E	100	20	LAOC	Seedling-sapling	40-69	WF
SD-02	3,300	E	90	20	LAOC	Immature poletimber	40-69	WF
SD-03	3,550	E	110	35	LAOC	Immature poletimber	40-69	WF
SD-04	3,700	S	180	30	LAOC	Immature poletimber	40-69	WF
SD-05	3,950	E	110	25	LAOC	Immature poletimber	40-69	WF
SD-06	4,200	N	355	30	TSHE	Mature sawtimber	40-69	WF
SD-07	4,300	E	130	15	THPL	Mature sawtimber	70-100	CC/WF
SD-08	4,150	N	320	50	TSHE	Mature sawtimber	40-69	CC/WF
SD-09	4,100	N	0	45	TSHE	Mature sawtimber	40-69	WF
SD-10	4,050	S	160	30	LAOC	Immature poletimber	40-69	WF
SD-14	3,400	W	270	40	PSME	Immature poletimber	70-100	WF
SD-15	3,450	W	225	30	PSME	Immature poletimber	70-100	WF
SD-16	3,350	W	240	30	PSME	Immature poletimber	70-100	WF
SD-17	3,650	W	240	30	LAOC	Immature poletimber	10-39	WF
SD-18	3,550	W	245	35	LAOC	Immature poletimber	10-39	WF
SD-19	4,250	E	115	25	PIMO	Immature poletimber	70-100	WF
SD-20	3,800	N	340	40	PIMO	Immature poletimber	70-100	WF
SD-21	3,450	S	165	25	PSME	Unstocked	<10	WF

<sup>1</sup>Dominant timber species: LAOC = *Larix occidentalis*, PIMO = *Pinus monticola*, PSME = *Pseudotsuga menziesii*, THPL = *Thuja plicata*, TSHE = *Tsuga heterophylla*.

<sup>2</sup>Tree size classes: sawtimber (9+ inches d.b.h.), poletimber (5 to 9 inches d.b.h.), seedling and sapling (<5 inches d.b.h.), unstocked (tree size unstated, few trees present).

<sup>3</sup>WF = wildfire; CC = clearcut.

Cardinal exposures are represented as follows:

No. of study areas	Exposure
4	North
6	East
3	South
5	West

Steepness of slope (5 percent intervals) varied from 15 to 50 percent. Grouped in intervals of 20 percent for gentle, moderate, and steep slope, the representation is:

No. of study areas	Slope
1	Gentle (0 to 20 percent)
13	Moderate (20 to 35 percent)
4	Steep (35+ percent)

Prefire vegetation of study areas described by timber cover types (USDA Forest Service 1962) represents three tree size classes—seedling and sapling, immature poletimber, and mature sawtimber, and four overstory cover classes—<10 percent, 10 to 40 percent, 40 to 70 percent, and 70 through 100 percent, as follows:



No. of study areas	Cover type (tree size and overstory cover class)
8	<i>Larix occidentalis</i>
(1)	(Seedling and sapling size class)
(1)	(40 to 70 percent crown coverage)
(7)	(Immature poletimber size class)
(5)	(40 to 70 percent crown coverage)
(2)	(10 to 40 percent crown coverage)
2	<i>Pinus monticola</i>
(2)	(Immature poletimber size class)
(2)	(70 through 100 percent crown coverage)
4	<i>Pseudotsuga menziesii</i>
(3)	(Immature poletimber size class)
(3)	(40 to 70 percent crown coverage)
(1)	(Unstocked tree class)
(1)	(<10 percent crown coverage)
1	<i>Thuja plicata</i>
(1)	(Mature sawtimber size class)
(1)	(70 through 100 percent crown coverage)
3	<i>Tsuga heterophylla</i>
(3)	(Mature sawtimber size class)
(3)	(40 to 70 percent crown coverage)

The primary disturbance initiating secondary forest succession was a stand-replacing wildfire. Additional disturbance by clearcut logging that predated the fire resulted in disturbance treatments of vegetation as follows:

No. of study areas	Disturbance treatment
13	Wildfire in standing timber
2	Wildfire in clearcut
3	Wildfire in shrubfield

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APPENDIX: VEGETATION INITIATING SECONDARY FOREST SUCCESSION ON SUNDANCE BURN STUDY AREAS—  
FLORISTIC COMPOSITION OF THE FIRST POSTFIRE YEAR AND SPECIES RESPONSE TO THE FIRE

Species	Abbre- viation	Sundance Burn study area																			
		01	02	03	04	05	06	07	08	09	10	14	15	16	17	18	19	20	21		
TREES																					
<i>Abies grandis</i> <sup>1</sup>	ABGR																				
<i>Betula papyrifera</i>	BEPA	RS <sup>2</sup>	RS			S				S						RS			S		
<i>Larix occidentalis</i> <sup>1</sup>	LAOC																				
<i>Picea engelmannii</i> <sup>1</sup>	PIEN																				
<i>Pinus contorta</i>	PICO	S															S	S	S		
<i>Pinus monticola</i>	PIMO	S	S																		
<i>Populus tremuloides</i>	POTRE			R		RS			S	S	S							S	S		
<i>Populus trichocarpa</i>	POTRI			R																	
<i>Pseudotsuga menziesii</i>	PSME				PS	P	PS	PS	P	P	P			P							
SHRUBS																					
<i>Acer glabrum</i>	ACGL	R	R	R		R							R	R	R	R			R		
<i>Alnus sinuata</i>	ALSI	R	R			R											R				
<i>Amelanchier alnifolia</i>	AMAL	R		R								R	R		R	R	R		R		
<i>Ceanothus sanguineus</i>	CESA	S	S	S	S	S	S				S	S	RS	RS	RS	RS	R*S			RS	
<i>Ceanothus velutinus</i>	CEVE	S												RS	RS	RS	RS				
<i>Holodiscus discolor</i>	HODI	R		R									R		R	RS	RS				
<i>Lonicera utahensis</i>	LOUT				R					R			R		R	R	R				
<i>Oplopanax horridum</i>	OPHO									R								R			
<i>Pachistima myrsinites</i>	PAMY	RS		RS	RS	RS		S		S	RS	R	RS	RS	RS	RS	RS	R	R	R	
<i>Prunus emarginata</i>	PREM												R		R	R			R		
<i>Ribes lacustre</i>	RILA																	S			
<i>Ribes viscosissimum</i>	RIVI																S				
<i>Rosa gymnocarpa</i>	ROGY			R	R	R						R	R	R	R	R			R	R	
<i>Rubus leucodermis</i>	RULE					S		RS	RS	RS	RS										
<i>Rubus parviflorus</i>	RUPA		R	R	R	R		RS	R	R	R			R		RS	R	R	R	R	
<i>Salix scouleriana</i>	SASC	RS	RS	RS	S	RS	S	S	S	S	RS	RS	RS	RS	R	RS	RS	RS	RS	RS	
<i>Sambucus racemosa</i>	SARA							RS	RS	S	S										
<i>Sorbus scopulina</i>	SOSC	R				R								R							
<i>Spiraea betulifolia</i>	SPBE	R*											R	R	R	R*			R*		
<i>Symphoricarpos albus</i>	SYAL												R	R	R	R*					
<i>Vaccinium membranaceum</i>	VAME	R		R	R	R	R	R	R	R	R				R	R				R	
HERBS (includes low woody plants)																					
<i>Achillea millefolium</i>	ACMI														R	R					
<i>Adenocaulon bicolor</i>	ADBI					R			R*	R*											
<i>Agrostis alba</i>	AGAL	S*												S*		S*					
<i>Agrostis scabra</i>	AGSC	S*														S*					
<i>Anaphalis margaritacea</i>	ANMA		X		X				X*	X	X*	X	X	X	X	X		X*	X*		
<i>Apocynum androsaemifolium</i>	APAN	R*	R*	R*	R	R				R			R	R		R		R		R	
<i>Arabis holboellii</i>	ARHO															S	S				
<i>Aralia nudicaulis</i>	ARNU		R																		
<i>Arnica cordifolia</i>	ARCO																				
<i>Arnica latifolia</i>	ARLA									R									R		
<i>Asarum caudatum</i>	ASCA									S											
<i>Aster conspicuus</i>	ASCO																				
<i>Aster engelmannii</i>	ASEN															R*	R*				
<i>Athyrium filix-femina</i>	ATFI							N		N											
<i>Berberis repens</i>	BERE													R	R	R	R		R		
<i>Calamagrostis rubescens</i>	CARU	R*		R*										R*		R*	R*		R*		
<i>Calochortus apiculatus</i>	CAAP															R*					
<i>Carex deweyana</i> <sup>1</sup>	CADE																				
<i>Carex geyeri</i>	CAGE															R					
<i>Carex rossii</i>	CARO	S		S	S	S		S		S	S	S	S	S	S	S	S			S	
<i>Castilleja miniata</i> <sup>1</sup>	CAMI																				
<i>Chenopodium album</i>	CHAL					S*															
<i>Cirsium arvense</i>	CIAR								R*	R*											
<i>Cirsium vulgare</i>	CIVU							S					S	S		S					
<i>Clintonia uniflora</i>	CLUN	R		R	R	R	R	R	R	R		R				R			R	R	
<i>Collinsia parviflora</i>	COPA													S*		S*	S*				

(con.)

# APPENDIX: (Con.)

Species	Abbre- viation	Sundance Burn study area																			
		01	02	03	04	05	06	07	08	09	10	14	15	16	17	18	19	20	21		
<i>Conyza canadensis</i>	COCA	S*	S*	S*	S*	S*			S*	S*	S*	S*		S*	S*	S*	S*	S*	S*		
<i>Cryptantha affinis</i>	CRAF														S*	S*					
<i>Dactylis glomerata</i>	DAGL									S				S		S					
<i>Disporum hookeri</i>	DIHO	R	R*	R	R	R*		R*	R*	R*		R		R	R	R*		R*	R*		
<i>Dracocephalum parviflorum</i>	DRPA														S	S					
<i>Epilobium angustifolium</i>	EPAN	S*	S*	S*	S*	S*	S*	R*S	S*	S*	S*	S*	S*	S*	S	S*	S*	S*	S		
<i>Epilobium paniculatum</i>	EPPA	S*		S*	S*					S*	S	S	S	S	S	S*	S*	S*			
<i>Epilobium watsonii</i>	EPWA	S*	S*	S*	S*		S	S	S*	S*	S*	S	S	S	S	S*	S*	S*			
<i>Equisetum arvense</i>	EQAR								R												
<i>Erigeron acris</i> <sup>1</sup>	ERAC																				
<i>Erucastrum gallicum</i>	ERGA					S*															
<i>Festuca arundinacea</i>	FEAR	S	S	S*	S	S	S	S	S	S	S	S									
<i>Filago arvensis</i>	FIAR	S*							S*					S*			S*				
<i>Fragaria vesca</i>	FRVE														X	X					
<i>Galium triflorum</i>	GATR								X		X										
<i>Geranium bicknellii</i>	GEBI												S	S			S		S		
<i>Gnaphalium microcephalum</i>	GNMI	S	S		S	S		S	S*	S	S	S	S	S	S	S	S	S	S*		
<i>Gnaphalium palustre</i>	GNPA		S*							S*			S*	S*	S*			S*			
<i>Habenaria elegans</i>	HAEL	R*											R*		R*	R*			R*		
<i>Hieracium albidiflorum</i>	HIAL										S										
<i>Iliamna rivularis</i>	ILRI			S	S	S					S	R*	S	R*	S	S	S	S	S		
<i>Lactuca serriola</i>	LASE							S*	S*	S*		S	S			S*					
<i>Lilium columbianum</i>	LIOC	R*		R*	R*	R*										R	R*		R*		
<i>Lolium multiflorum</i>	LOMU									S*											
<i>Lupinus argenteus</i>	LUAR												R		R	R*					
<i>Luzula piperi</i>	LUPI										X*										
<i>Phleum pratense</i>	PHPR									S*				S		S*					
<i>Plantago major</i>	PLMA										X*										
<i>Poa palustris</i>	POPA					S*															
<i>Polygonum douglasii</i>	PODO										S*		S		S*						
<i>Polygonum lapathifolium</i>	POLA										S*										
<i>Pteridium aquilinum</i>	PTAQ	R	R	R	R	R		R	R	R	R	R		R		R	R	R	R		
<i>Pyrola picta</i>	PYPI																R				
<i>Pyrola secunda</i>	PYSE								R												
<i>Rumex acetosella</i>	RUAC	R																			
<i>Secale cereale</i>	SECE					S*	S*	S*	S*	S*	S*	S*			S*	S*	S*				
<i>Senecio vulgaris</i>	SEVU				S*	S*	S*	S*	S*	S*	S*			S*							
<i>Silene noctiflora</i>	SINO					S*															
<i>Smilacina racemosa</i>	SMRA																				
<i>Smilacina stellata</i>	SMST				R			R					R			R*			R		
<i>Solidago canadensis</i>	SOCA															R*			R		
<i>Spergularia rubra</i>	SPRU					S*		S*			S*						S*	S*			
<i>Stellaria media</i>	STME					S*					S*					S*					
<i>Stellaria obtusa</i>	STOB										S										
<i>Taraxacum officinale</i>	TAOF	S							S		S										
<i>Thalictrum occidentale</i>	THOC				R										R	R					
<i>Tiarella trifoliata</i> var. <i>unifoliata</i>	TITRU								R	R											
<i>Trautvetteria caroliniensis</i>	TRCA								R	R											
<i>Trifolium repens</i>	TRRE		S*			S*	S*		R	S*	S*					S*			S		
<i>Trillium ovatum</i>	TROV							R		R											
<i>Viola glabella</i>	VIGL							R*S	R*	R											
<i>Viola orbiculata</i>	VIOR	R			R			R*	R*		R			S		R			R		
<i>Xerophyllum tenax</i>	XETE	R					N			N			N		R	R	R				

<sup>1</sup>Not observed in initial flora.

<sup>2</sup>Key to appendix symbols:

- N Nonsurvivor.
- P Reforestation transplant.
- R Survivor, regrowing from burned plant.
- S Colonizer, seedling first postfire year.
- X Present first year; postfire origin unascertained.
- \* Flowering first postfire year.





## INDEX TO DATA BASE TABLES FOR SUNDANCE BURN STUDY AREAS

Tabulated data are presented in order of increasing SD study area number. Study areas are indexed below by prefire vegetation and exposure of slope.

Exposure	Study area No.	Table No.	Page
Wildfire in standing timber			
North	SD-06	6-1 - 6-6	44
	SD-09	9-1 - 9-6	62
	SD-20	17-1 - 17-6	110
East	SD-01	1-1 - 1-6	14
	SD-02	2-1 - 2-6	20
	SD-03	3-1 - 3-6	26
	SD-05	5-1 - 5-6	38
	SD-19	16-1 - 16-6	104
South	SD-04	4-1 - 4-6	32
	SD-10	10-1 - 10-6	68
West	SD-14	11-1 - 11-6	74
	SD-15	12-1 - 12-6	80
	SD-16	13-1 - 13-6	86
Wildfire on clearcut area			
North	SD-08	8-1 - 8-6	56
East	SD-07	7-1 - 7-6	50
Wildfire in shrubfield			
South	SD-21	18-1 - 18-6	116
West	SD-17	14-1 - 14-6	92
	SD-18	15-1 - 15-6	98

SUNDANCE BURN: 1802-16 Study Area SD-01

Site location and description: NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 9, T. 60 N., R. 2 W., BM; Elevation: 2,950 ft; Exposure: East (Az. 100°); Slope: 20%

Forest cover type and tree size class: Western larch seedling and sapling, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 11.6/0.01 ha; Average d.b.h.: 15.2 cm; Basal area: 4,298 cm<sup>2</sup>/0.01 ha

Shrub component: ALSI 50%; SASC 50% (Shrub density: 0.8/0.01 ha);

Other species present: ACGL, AMAL, HODI, PAMY, SOSC, SPBE, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1900-1930 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: 1 to 6 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 1-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 1-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	1	--	1	2	3	4	8	10	17	19	19	27
Shrub	2	4	4	12	14	17	21	18	29	29	39	49	77	68	68
Herb	14	37	31	33	32	32	28	34	38	36	34	46	25	34	39
Total veg.	16	41	35	46	45	49	51	55	70	73	82	112	121	121	134

Table 1-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 1-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	0.1	--	0.2	0.9	1.7	6.2	16.2	24.8	52.9	60.5	82.7	127.8
Shrub	0.9	1.8	2.1	3.8	7.5	8.1	8.7	9.3	24.9	27.6	31.2	47.4	94.3	110.4	110.0
Herb	3.7	10.2	7.4	8.6	8.6	8.6	7.6	9.6	11.7	11.2	10.0	16.0	8.0	13.6	17.8
Total veg.	4.6	12.0	9.6	12.5	16.1	16.8	17.2	20.6	42.8	55.0	65.9	116.4	162.8	206.8	255.6



Figure 1-1.—Vegetative cover.

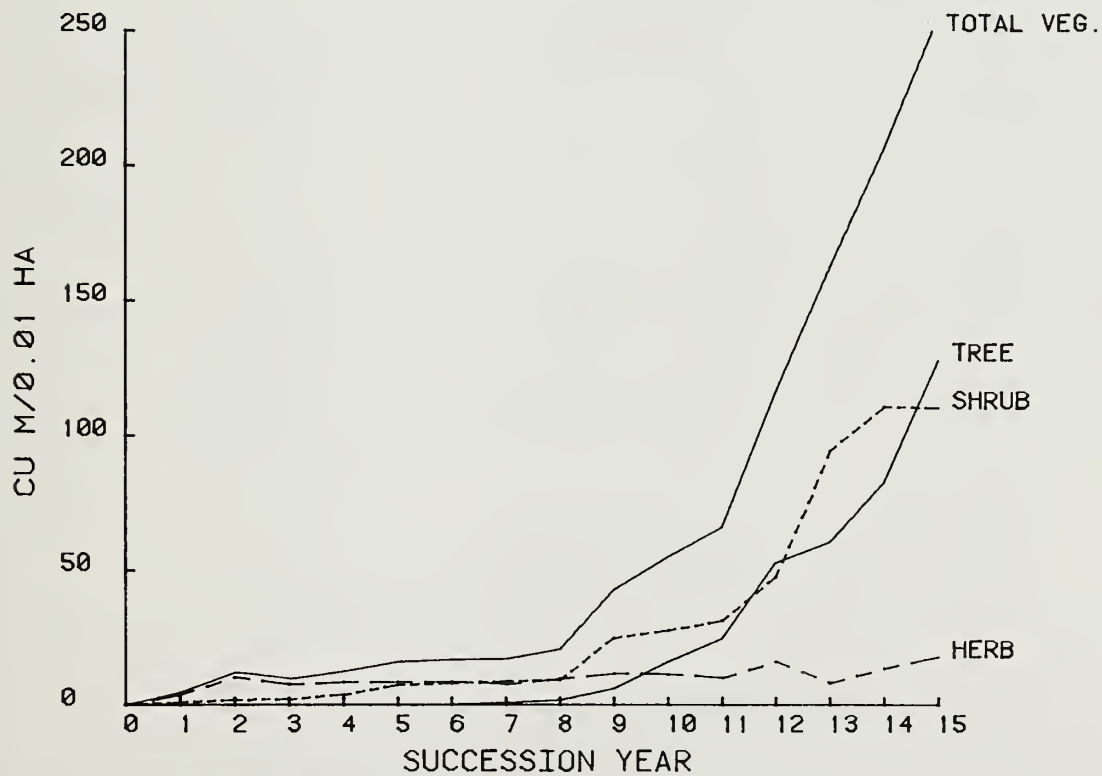


Figure 1-2.—Vegetative volume.

Table 1-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 1-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
ABGR	--	--	--	1	--	1	2	2	2	3	3	4	4	4	4
BEPA	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	1
PICO	--	--	--	--	--	--	<1	1	2	5	7	13	14	14	22
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	<1
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	--	--	2	4	4	5
CESA	--	--	--	--	--	--	--	--	2	1	1	2	2	9	10
CEVE	--	--	--	1	3	2	2	2	7	13	15	24	39	32	32
PAMY	--	--	--	2	2	1	1	1	1	1	2	2	2	3	3
SASC	1	2	3	3	3	5	9	6	10	7	9	8	17	12	9
SPBE	--	--	--	--	--	--	--	--	--	--	1	1	2	1	2
VAME	1	2	1	6	6	9	10	9	9	8	11	10	12	6	7

Table 1-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 1-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
APAN	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2
CARO	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--
CLUN	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2
EPAN	--	3	3	3	2	--	1	1	--	--	--	1	--	1	1
PTAQ	9	22	12	16	12	18	18	18	28	18	22	35	18	23	25
XETE	1	1	5	7	8	8	6	11	7	7	9	8	6	10	9
Misc.	4	9	9	8	9	6	3	4	3	12	2	2	2	--	--



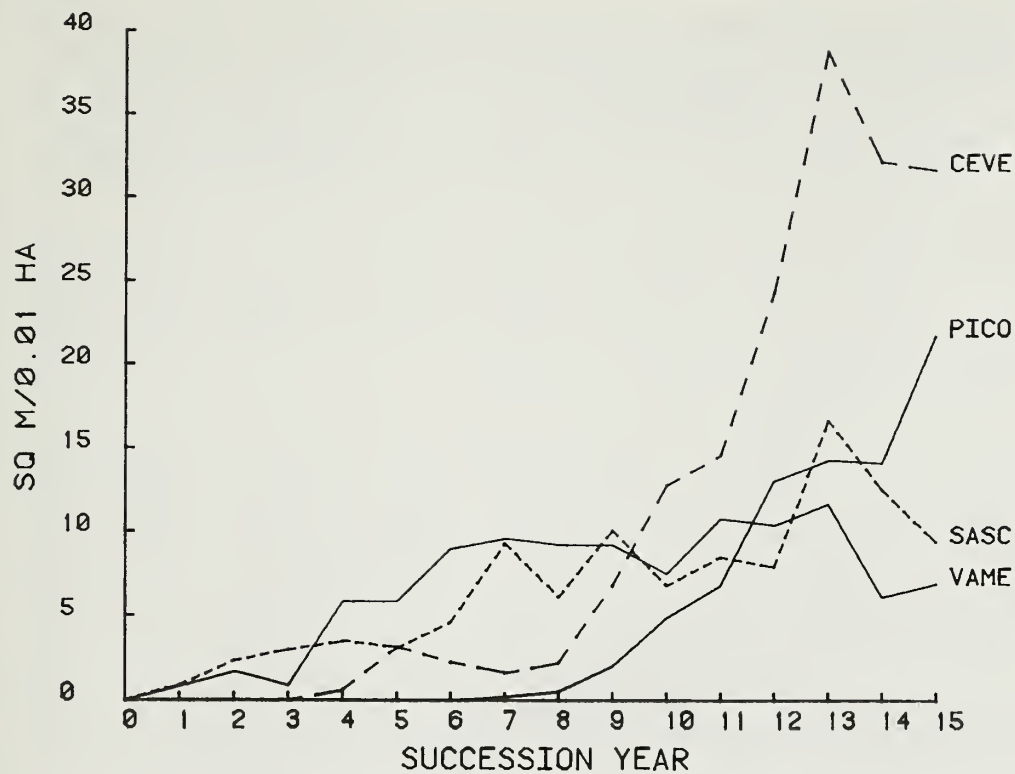


Figure 1-3.—Tree and shrub cover.

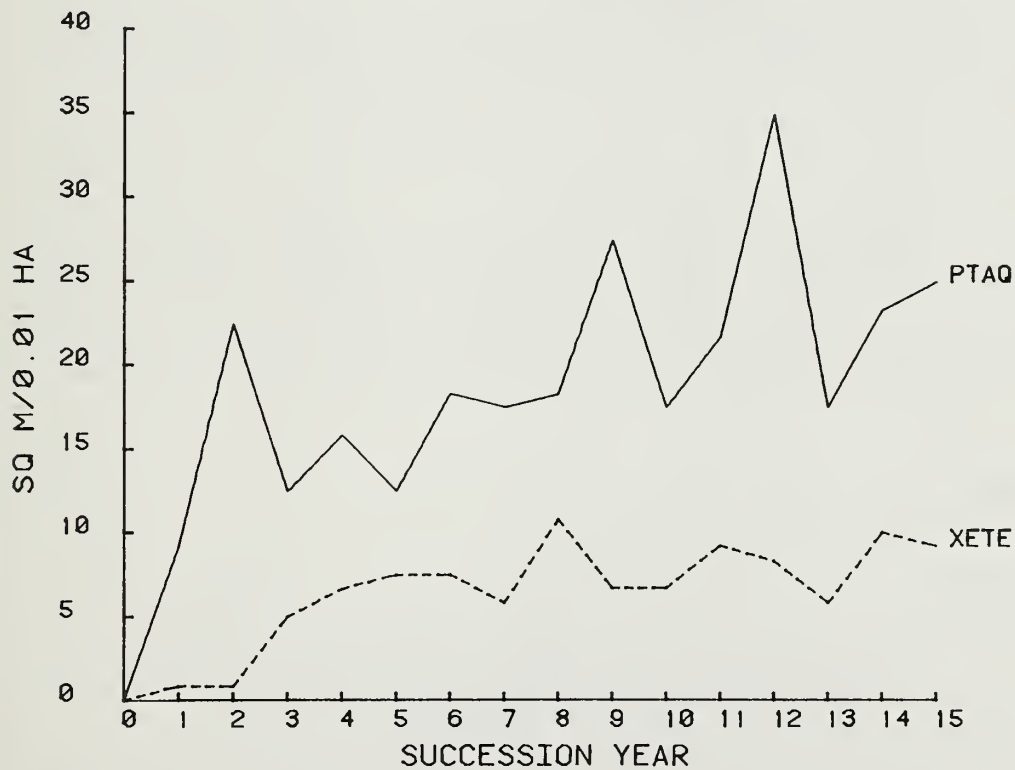


Figure 1-4.—Herb cover.

Table 1-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 1-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
ABGR	--	--	--	0.1	--	0.2	0.5	0.8	0.9	1.4	1.8	2.6	3.9	5.0	6.0
BEPA	--	--	--	--	--	--	--	--	--	--	--	--	.3	1.2	2.2
PICO	--	--	--	--	--	--	.4	.9	5.3	14.8	23.0	50.4	56.0	76.1	118.9
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	.3	.5	.6
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	--	--	3.1	7.3	9.6	9.0
CESA	--	--	--	--	--	--	--	--	4.6	3.5	3.3	5.5	6.8	24.3	30.2
CEVE	--	--	--	.4	2.5	1.8	1.1	2.2	8.2	15.4	16.1	29.3	57.8	60.6	57.9
PAMY	--	--	--	.2	0.2	.1	.1	.1	.1	.1	.4	.2	.4	.5	.6
SASC	0.8	1.6	2.0	2.3	3.7	4.6	5.6	5.1	10.1	7.1	9.4	7.3	18.8	13.8	10.1
SPBE	--	--	--	--	--	--	--	--	--	--	.1	.2	.4	.1	.5
VAME	.1	.2	.1	1.0	1.1	1.6	2.0	1.9	1.9	1.4	1.9	1.8	2.7	1.4	1.7

Table 1-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 1-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
APAN	--	--	--	--	--	--	--	--	--	--	0.1	--	--	--	0.3
CARO	--	0.1	<0.1	--	--	--	--	--	--	--	--	--	--	--	--
CLUN	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.2
EPAN	--	1.0	.8	1.0	0.8	--	0.3	0.3	--	--	--	0.8	--	0.4	.3
PTAQ	2.9	7.5	4.0	5.1	4.4	6.0	5.7	6.4	9.8	6.7	7.3	12.7	6.3	10.3	11.5
XETE	.1	.2	1.0	1.2	1.5	1.4	1.1	2.0	1.4	1.7	2.2	2.3	1.4	3.0	5.6
Misc.	.7	1.5	1.6	1.4	1.8	1.2	.5	.8	.4	2.9	.4	.2	.2	--	--

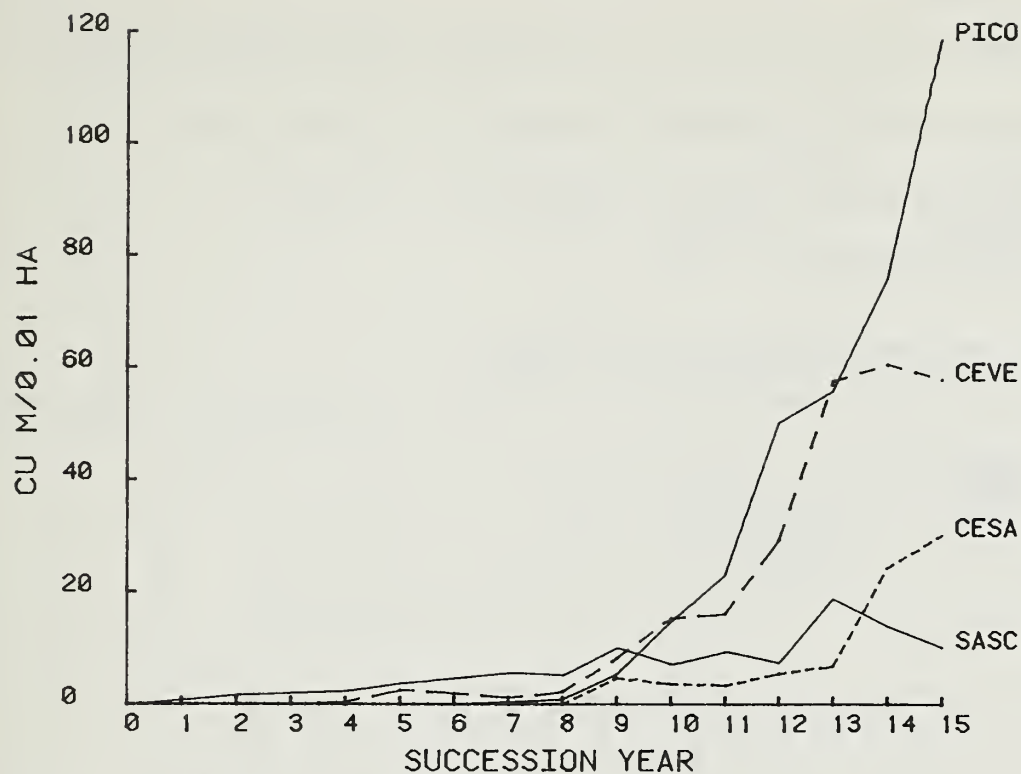


Figure 1-5.—Tree and shrub volume.

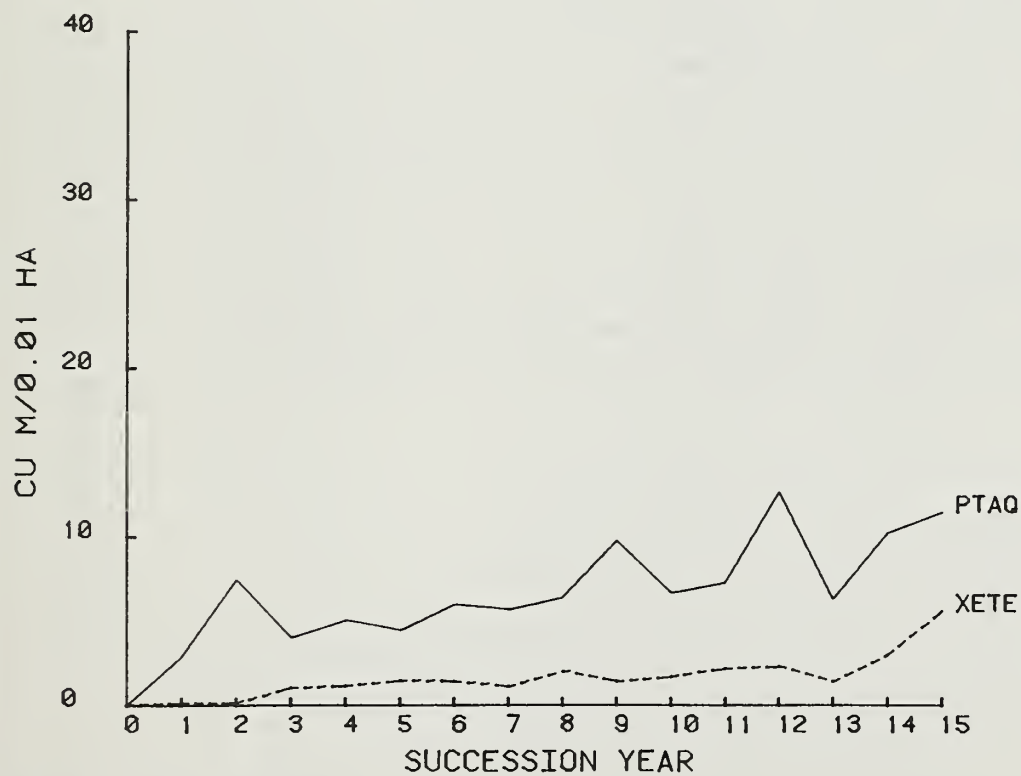


Figure 1-6.—Herb volume.

Site location and description: SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 3,300 ft; Exposure: East (Az. 90°);  
Slope: 20%

Forest cover type and tree size class: Western larch immature poletimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer-paper birch density: 14.8/0.01 ha; Average d.b.h.: 11.4 cm;

Basal area: 2,144 cm<sup>2</sup>/0.01 ha

Shrub component: SASC 100% (Shrub density: 0.4/0.01 ha);

Other species present: ACGL, ALSI, RUPA

Disturbance treatment:

Wildfire: September 1, 1967 (1800-1900 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 11,300 Btu/sec/ft; Rate of spread: 1 to 2.5 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Mostly consumed or scorch killed; Litter-duff: Consumed

Table 2-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 2-1

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	--	--	--	--	--	1	3	1	45	54	53	76
Shrub	11	19	24	29	37	52	64	84	57	63	82	76
Herb	83	78	75	72	72	69	72	78	77	78	88	86
Total veg.	94	98	99	100	110	122	139	162	179	194	223	238

Table 2-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 2-2

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	--	--	--	--	--	0.3	1.2	0.2	183.3	230.7	283.4	409.9
Shrub	5.1	12.3	11.7	17.1	29.6	64.2	71.5	119.5	84.2	111.3	163.2	145.9
Herb	35.4	45.8	47.5	44.0	41.0	42.8	40.5	48.6	45.4	59.4	79.2	81.7
Total veg.	40.5	58.1	59.2	61.1	70.6	107.2	113.2	168.4	312.9	401.4	525.9	637.5



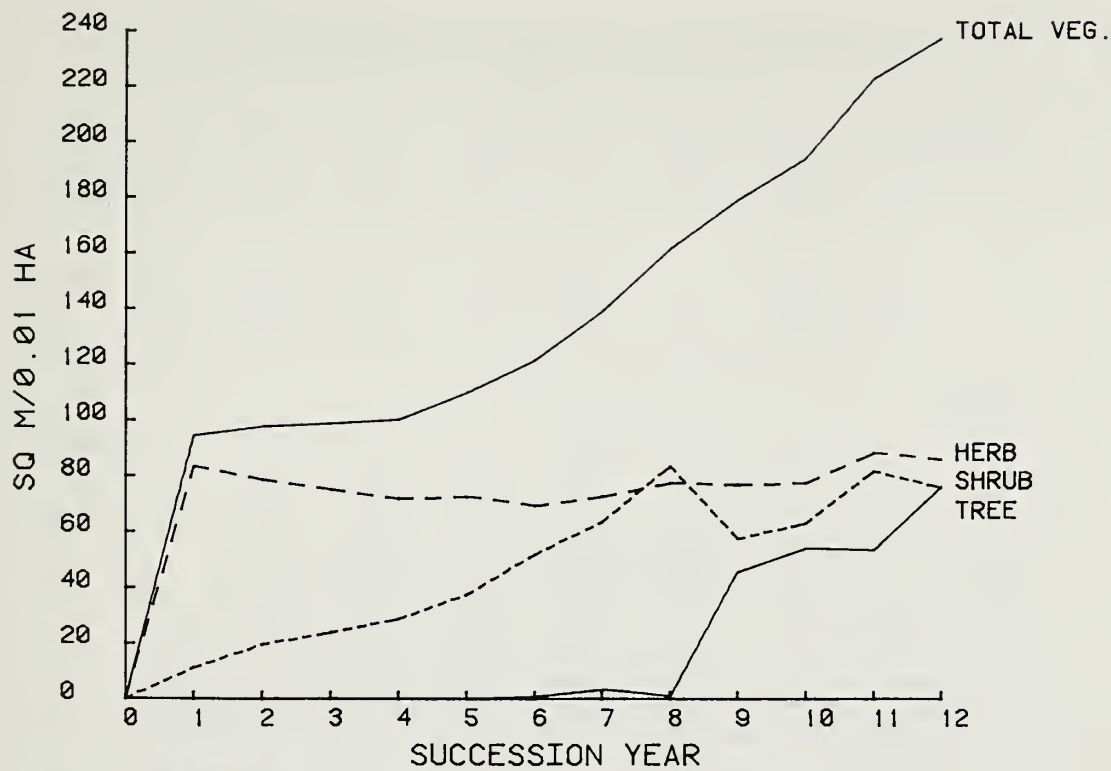


Figure 2-1.—Vegetative cover.

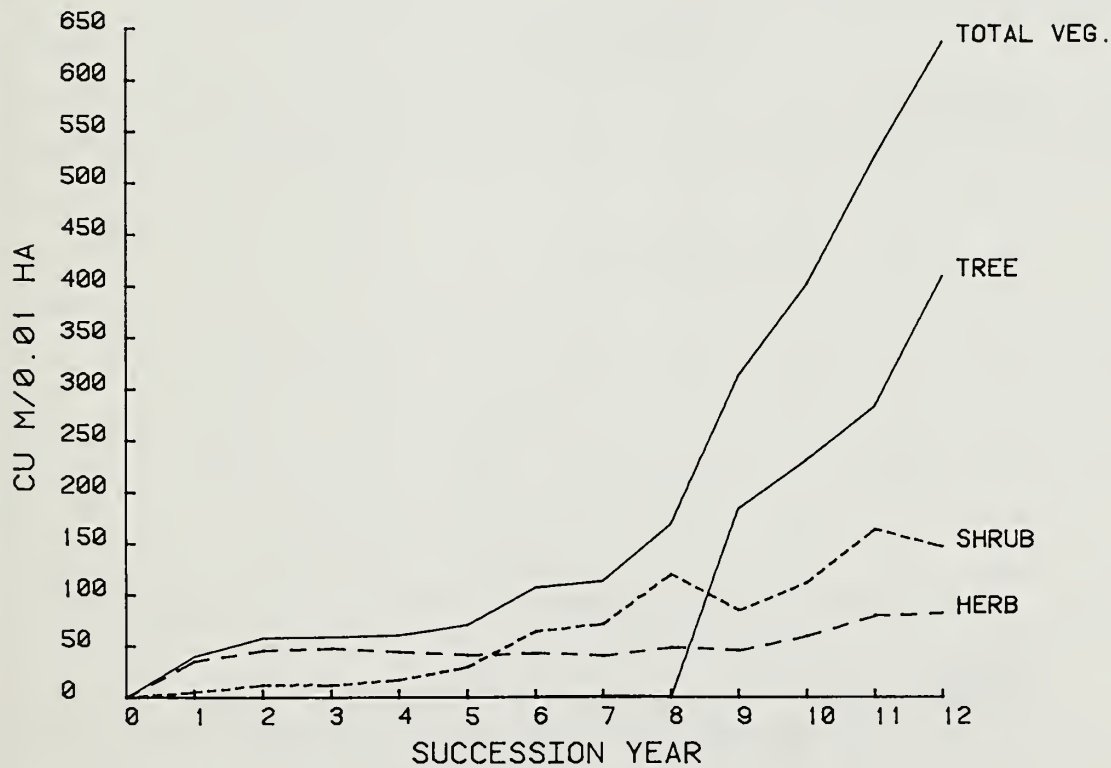


Figure 2-2.—Vegetative volume.

Table 2-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 2-3

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
BEPA	--	--	--	--	--	1	3	1	43	48	47	69
PSME	--	--	--	--	--	--	--	--	2	5	6	7
<u>Shrub</u>												
ALSI	--	<1	<1	1	1	2	--	2	--	--	2	<1
CESA	--	<1	1	3	11	20	33	43	23	32	49	35
CEVE	--	--	--	--	--	--	--	--	--	--	--	<1
PAMY	--	--	--	--	--	--	--	--	--	--	--	1
RUPA	10	12	14	17	15	13	15	18	18	15	11	14
SASC	1	7	8	8	10	16	15	20	16	16	20	25

Table 2-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 2-4

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
ANMA	--	--	--	--	2	--	--	2	1	1	1	1
APAN	2	6	6	2	6	7	5	3	5	10	4	5
ARNU	--	--	--	--	--	--	--	--	1	--	--	--
DIHO	--	--	--	--	--	--	--	--	--	2	--	1
EPAN	40	30	22	27	22	23	8	14	12	9	8	5
HIAL	--	--	--	--	--	--	--	--	--	1	--	--
PTAQ	40	42	43	37	33	38	59	57	57	55	76	74
TRRE	--	--	--	--	5	--	--	--	--	--	--	--
Misc.	2	2	3	5	4	1	--	2	1	--	--	--

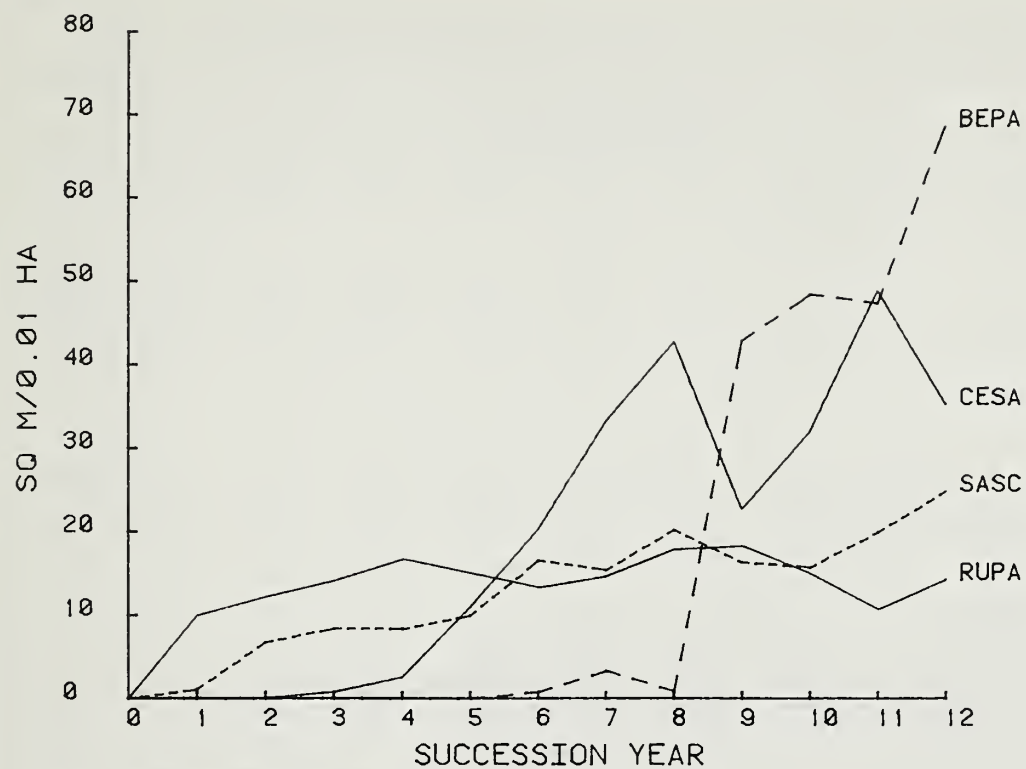


Figure 2-3.—Tree and shrub cover.



Figure 2-4.—Herb cover.

Table 2-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 2-5

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
BEPA	--	--	--	--	--	0.3	1.2	0.2	179.1	219.6	268.4	386.4
PSME	--	--	--	--	--	--	--	--	4.1	11.1	15.0	23.5
<u>Shrub</u>												
ALSI	--	0.8	1.1	3.5	4.2	4.8	--	5.1	--	--	6.1	<0.1
CESA	--	<.1	.5	2.4	13.5	40.2	52.9	81.0	51.7	79.8	112.6	96.0
CEVE	--	--	--	--	--	--	--	--	--	--	--	.1
PAMY	--	--	--	--	--	--	--	--	--	--	--	.5
RUPA	3.2	3.5	4.2	4.3	3.9	3.3	4.2	6.9	8.9	4.5	4.0	5.1
SASC	1.9	7.9	5.9	6.9	8.0	15.8	14.4	26.4	23.6	26.9	40.5	44.1

Table 2-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 2-6

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
ANMA	--	--	--	--	0.8	--	--	0.8	0.3	0.8	0.5	0.8
APAN	0.3	2.0	2.2	0.5	2.0	2.6	1.3	1.1	1.6	3.5	1.6	1.5
ARNU	--	--	--	--	--	--	--	--	.1	--	--	--
DIHO	--	--	--	--	--	--	--	--	--	.4	--	.2
EPAN	17.7	18.6	13.2	14.3	13.9	17.1	3.9	7.0	6.2	6.0	5.4	3.8
HIAL	--	--	--	--	--	--	--	--	--	<.1	--	--
PTAQ	17.1	24.9	31.1	27.5	22.8	22.9	35.2	39.4	37.0	48.7	71.7	75.3
TRRE	--	--	--	--	.6	--	--	--	--	--	--	--
Misc.	.3	.4	.9	1.6	.9	.2	--	.4	.2	--	--	--

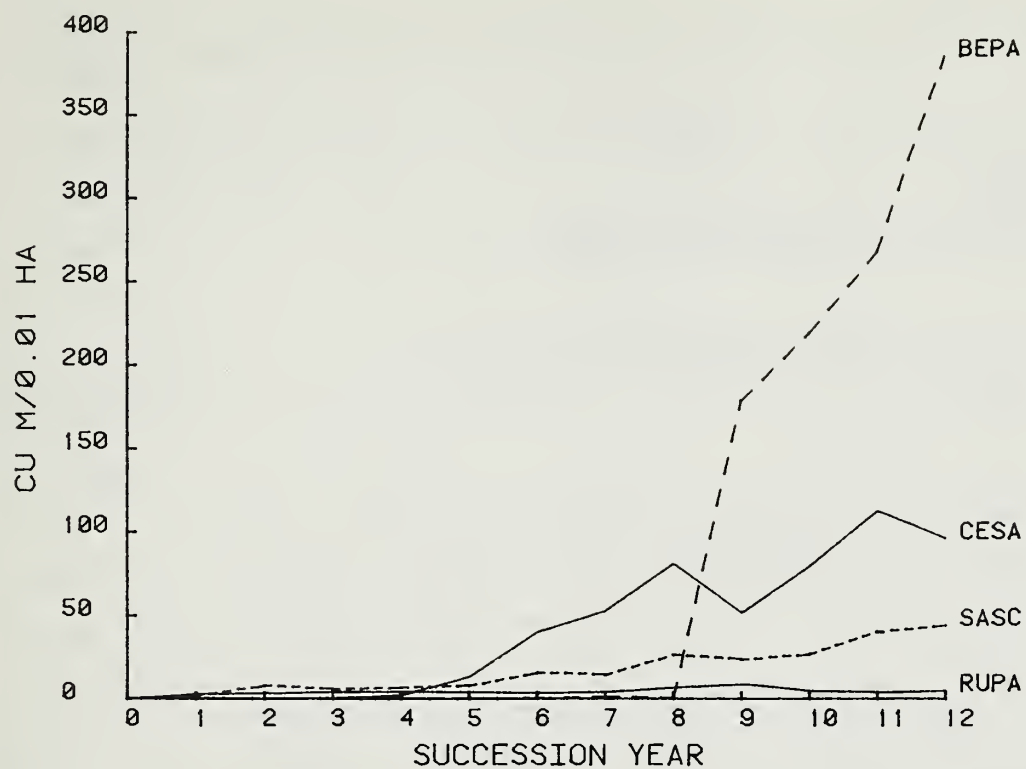


Figure 2-5.—Tree and shrub volume.

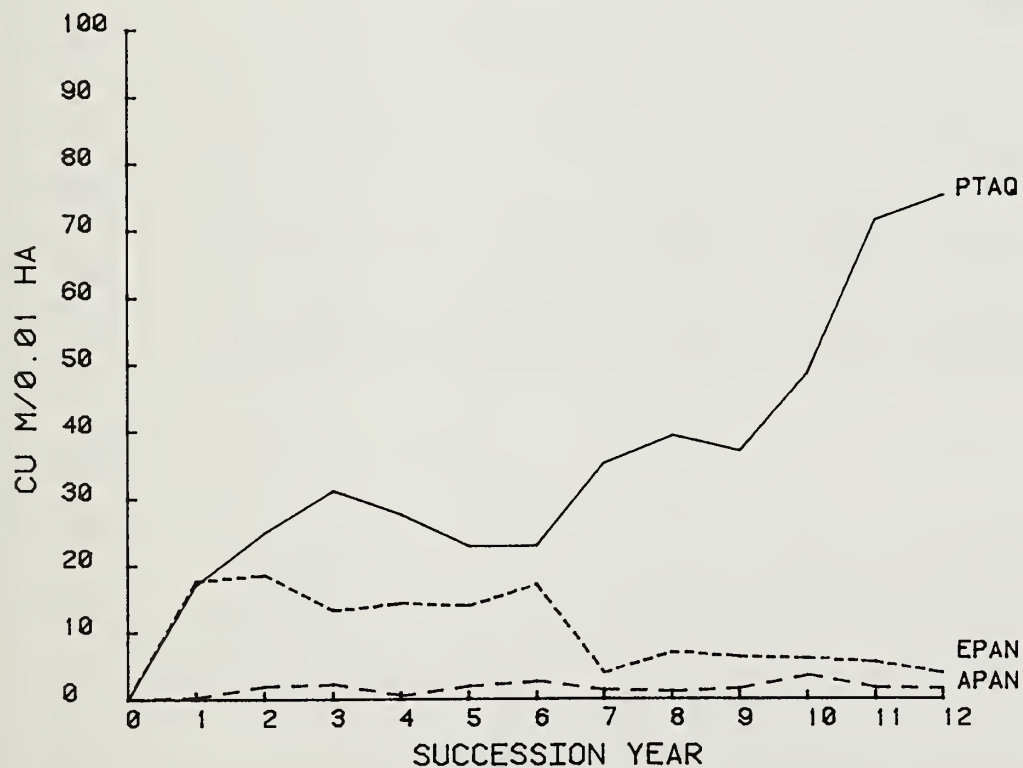


Figure 2-6.—Herb volume.



Site location and description: NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 3,550 ft; Exposure: East (Az. 110°); Slope: 35%

Forest cover type and tree size class: Western larch immature poletimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 9.2/0.01 ha; Average d.b.h.: 20.1 cm; Basal area: 4,644 cm<sup>2</sup>/0.01 ha

Shrub component: AMAL 17%, HODI 17%, POTRE 50% (Shrub density: 2.4/0.01 ha);

Other species present: ACGL, PAMY, ROGY, RUPA, SASC, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1800-1900 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 11,300 Btu/sec/ft; Rate of spread: 1 to 2.5 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter: Consumed; Duff: Almostly completely consumed

Table 3-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 3-1

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	4	--	--	--	--	--	--	--	7	6	3	7
Shrub	14	47	58	96	135	132	150	204	143	115	107	132
Herb	52	60	58	62	65	67	46	62	72	69	73	77
Total veg.	70	107	116	159	200	199	196	266	222	189	183	216

Table 3-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 3-2

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	2.7	--	--	--	--	--	--	--	14.1	16.3	9.8	23.5
Shrub	9.3	49.3	52.0	112.0	162.0	226.6	196.0	317.9	242.1	219.8	200.9	219.0
Herb	15.1	25.8	29.6	31.3	37.0	46.5	25.4	42.0	54.5	65.0	68.6	75.8
Total veg.	27.1	75.2	81.5	143.3	199.0	273.0	221.4	359.9	310.6	301.1	279.3	318.3

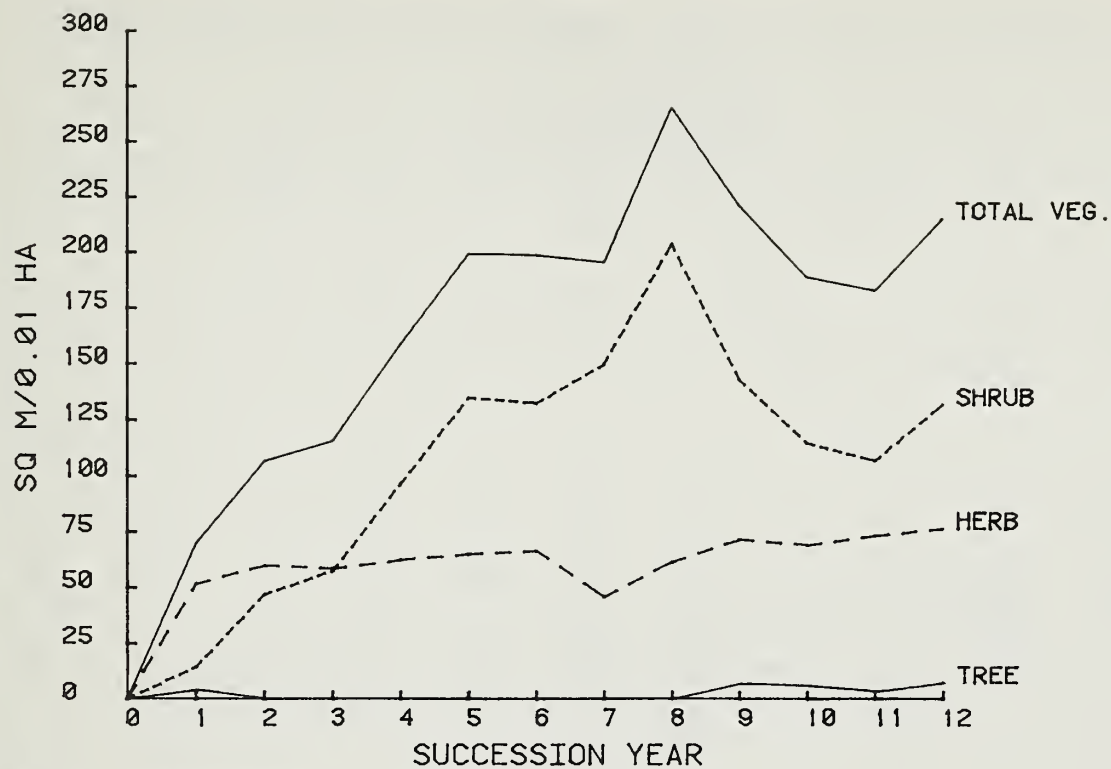


Figure 3-1.—Vegetative cover.

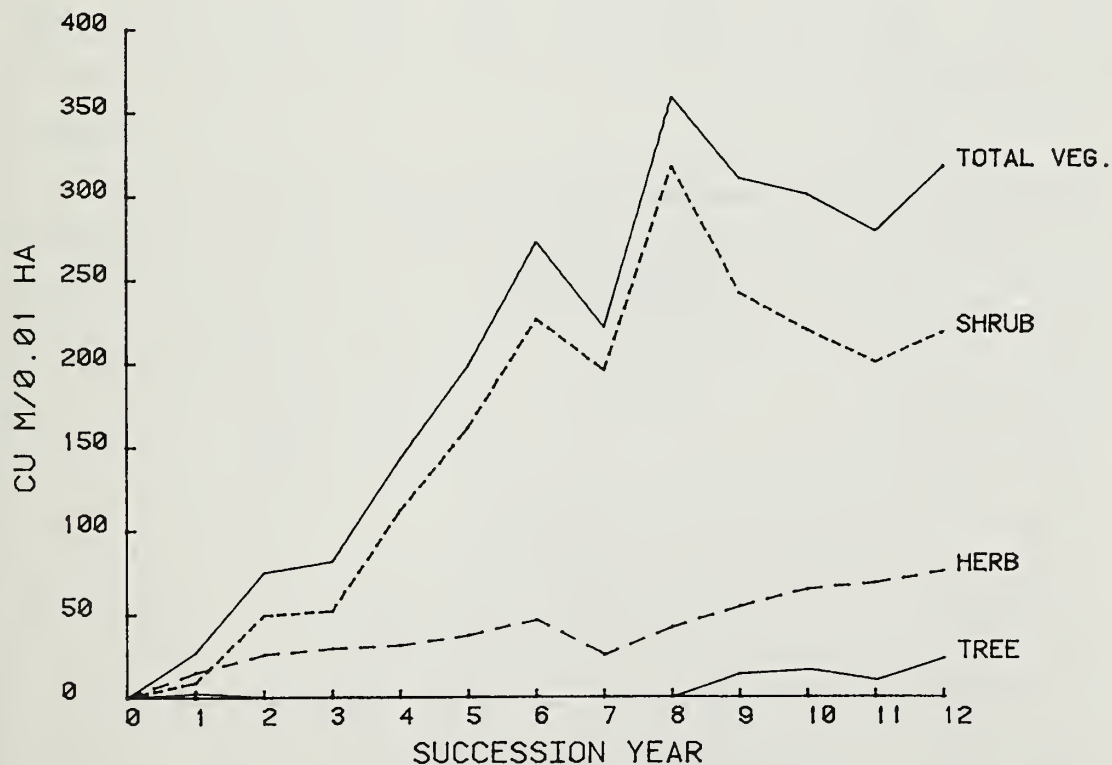


Figure 3-2.—Vegetative volume.

Table 3-3.--Cover development of tree and shrub components ( $m^2/0.01$  ha or %), fig. 3-3

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
POTRE	4	--	--	--	--	--	--	--	7	5	2	6
PSME	--	--	--	--	--	--	--	--	--	1	1	2
<u>Shrub</u>												
ACGL	--	--	--	--	--	1	--	1	--	--	1	--
AMAL	1	2	3	3	2	6	2	6	2	3	1	2
CESA	2	20	27	60	104	93	115	158	107	73	59	78
HODI	3	7	11	5	5	1	8	1	1	2	1	2
PAMY	1	1	2	5	5	8	8	9	8	15	18	20
PREM	--	--	--	--	--	--	--	--	<1	--	--	--
RIVI	--	--	--	--	--	1	--	--	--	--	--	--
ROGY	--	--	--	--	<1	<1	<1	2	1	<1	<1	1
RUPA	5	2	1	3	4	4	3	8	6	5	2	4
SASC	2	15	13	19	14	20	13	19	18	17	24	25

Table 3-4.--Cover development of herb component ( $m^2/0.01$  ha or %), fig. 3-4

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
ANMA	--	--	--	--	--	--	--	--	1	1	--	--
APAN	2	1	1	4	7	5	4	8	8	14	12	8
ARNU	--	--	--	--	--	--	--	--	--	1	2	2
CARU	--	--	--	--	--	--	--	--	--	1	--	1
CARO	--	--	--	--	1	2	2	2	2	1	3	3
CAMI	--	--	--	--	--	--	--	--	--	--	1	1
DIHO	--	2	2	2	2	2	3	2	3	2	2	3
EPAN	32	25	27	24	23	15	6	5	7	3	6	1
FEAR	--	--	--	--	--	--	1	1	1	1	2	1
PTAQ	14	22	24	24	27	41	28	40	49	46	45	56
Misc.	3	10	5	8	5	2	2	2	1	--	1	--

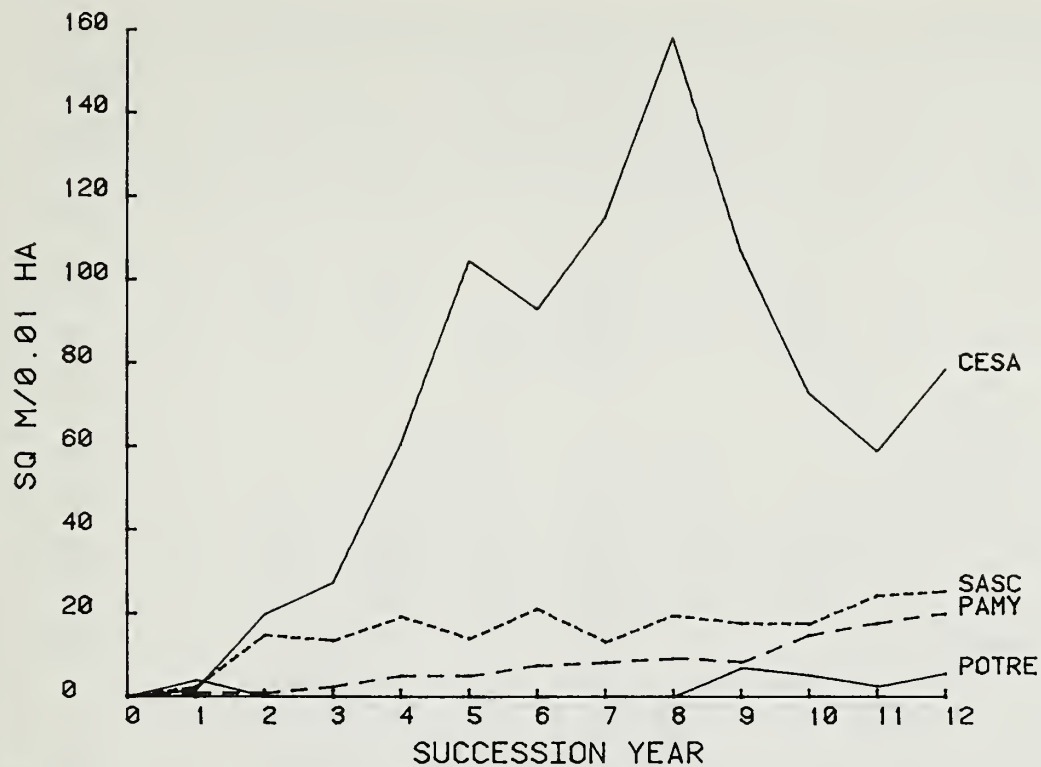


Figure 3-3.—Tree and shrub cover.



Figure 3-4.—Herb cover.



Table 3-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 3-5

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
POTRE	2.7	--	--	--	--	--	--	--	14.1	15.1	8.4	20.0
PSME	--	--	--	--	--	--	--	--	--	1.1	1.4	3.5
<u>Shrub</u>												
ACGL	--	--	--	--	--	1.6	--	2.5	--	--	2.8	--
AMAL	1.0	1.9	2.5	3.4	2.5	7.6	1.7	4.9	2.1	3.2	1.6	2.7
CESA	.1	7.5	13.2	57.2	123.9	162.7	150.2	252.3	183.6	154.6	113.0	114.9
HODI	3.4	7.7	10.7	4.9	5.8	1.5	12.6	1.7	2.5	3.3	1.8	4.7
PAMY	<.1	<.1	.4	.6	.7	1.2	1.6	2.5	2.2	4.3	5.8	6.7
PREM	--	--	--	--	--	--	--	--	.4	--	--	--
RIVI	--	--	--	--	--	1.3	--	--	--	--	--	--
ROGY	--	--	--	--	.2	.2	.2	.8	.3	.3	.2	.5
RUPA	1.0	.8	.4	1.1	1.9	1.6	1.3	4.3	3.1	1.9	1.0	1.5
SASC	3.8	31.4	24.8	44.8	27.1	48.9	28.4	48.9	47.9	52.1	74.7	88.1

Table 3-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 3-6

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
ANMA	--	--	--	--	--	--	--	--	0.4	0.6	--	--
APAN	0.3	0.2	0.1	1.0	2.0	1.5	1.4	2.8	3.6	5.9	5.9	4.4
ARNU	--	--	--	--	--	--	--	--	--	.2	.7	1.0
CARU	--	--	--	--	--	--	--	--	--	.2	--	.2
CARO	--	--	--	--	.1	.1	.3	.4	.3	.1	.4	.4
CAMI	--	--	--	--	--	--	--	--	--	--	.8	.5
DIHO	--	.4	.3	.3	.5	.6	.9	.9	1.2	.6	.4	1.4
EPAN	9.4	12.7	12.7	14.5	16.3	13.2	3.2	2.5	4.3	2.1	5.5	.8
FEAR	--	--	--	--	--	--	.1	.1	.2	.3	.4	.1
PTAQ	5.1	10.3	15.0	13.2	17.6	30.6	19.2	34.6	44.2	55.0	54.1	66.9
Misc.	.3	2.2	1.4	2.2	.6	.4	.3	.7	.3	--	.3	--

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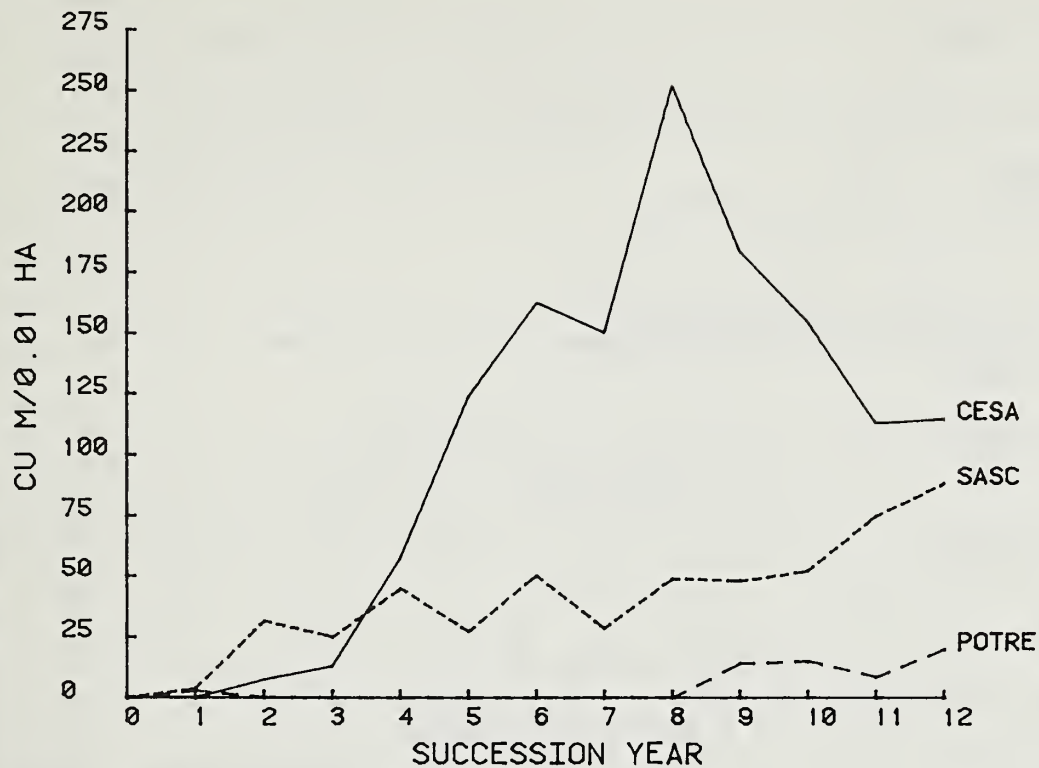


Figure 3-5.—Tree and shrub volume.

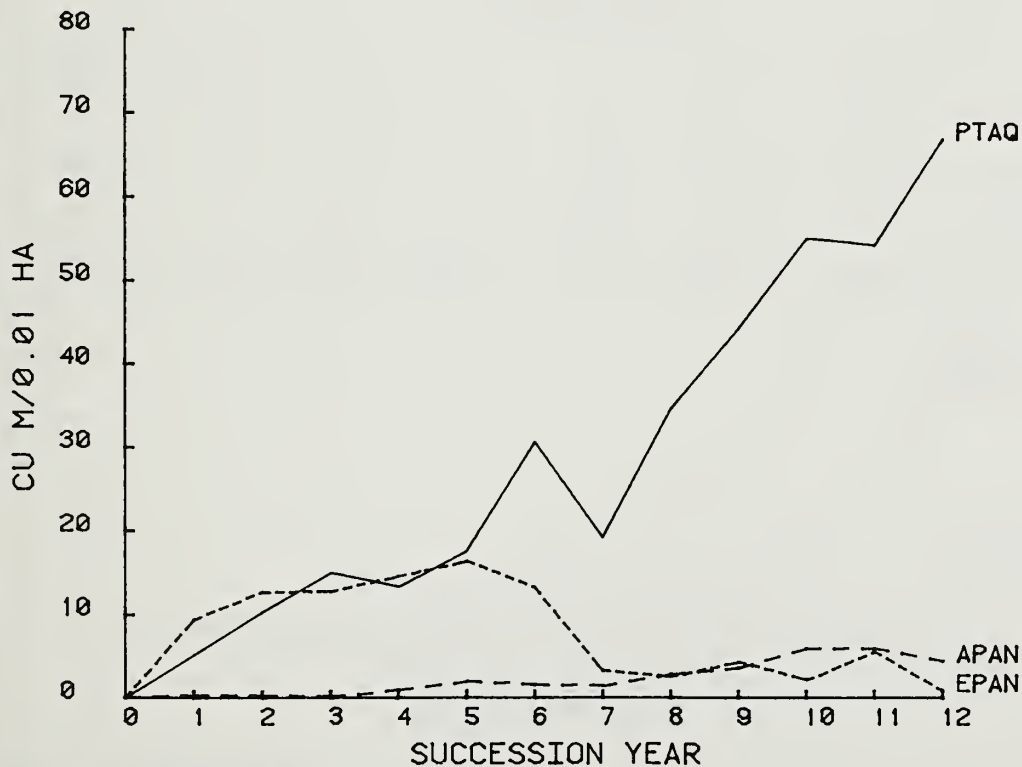


Figure 3-6.—Herb volume.

Site location and description: SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 3,700 ft; Exposure: South (Az. 180°);  
Slope: 30%

Forest cover type and tree size class: Western larch immature poletimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 22.4/0.01 ha; Average d.b.h.: 15.4 cm; Basal area: 7,307 cm<sup>2</sup>/0.01 ha

Shrub component: Species present: LOU, PAM, RUP, VAM

Disturbance treatment:

Wildfire: September 1, 1967 (1800 hrs); Succession year 1:1968;

Fire intensity: 11,300 Btu/sec/ft; Rate of spread: 2.5 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 4-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 4-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	<1	--	<1	--	--	1	5	9	10	11	23	27	35
Shrub	--	<1	5	9	17	15	15	30	30	32	32	38	48	70	85
Herb	29	52	48	47	56	48	53	53	62	62	55	60	60	63	67
Total veg.	29	52	53	57	73	63	69	84	96	103	97	110	131	160	187

Table 4-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 4-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	<0.1	--	0.2	--	--	1.6	7.2	18.1	21.9	28.8	68.0	92.3	150.0
Shrub	--	0.2	2.0	4.8	11.2	10.8	9.0	33.2	33.8	41.9	42.9	45.9	68.1	114.7	141.7
Herb	5.6	17.2	18.5	21.4	23.7	18.7	19.1	20.6	27.7	26.0	24.0	29.1	30.2	38.7	41.1
Total veg.	5.6	17.4	20.5	26.2	35.1	29.5	28.1	55.5	68.6	86.0	88.8	103.8	166.2	245.6	332.8



Figure 4-1.—Vegetative cover.



Figure 4-2.—Vegetative volume.



Table 4-3.--Cover development of tree and shrub components ( $m^2/0.01$  ha or %), fig. 4-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PICO	--	--	--	--	--	--	--	--	2	5	5	5	13	15	21
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	--
POTRE	--	--	--	--	--	--	--	--	<1	<1	1	1	1	2	2
PSME	--	--	<1	--	<1	--	--	1	2	4	5	6	10	9	13
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	3	3	3	4	7	11	18	21
CESA	--	--	--	--	--	--	--	7	5	7	8	6	14	15	18
LOUT	--	--	--	--	--	1	<1	1	1	1	1	2	2	3	6
PAMY	--	--	--	--	--	--	--	1	--	1	1	1	2	3	6
ROGY	--	--	<1	--	--	<1	<1	<1	<1	1	<1	<1	<1	<1	--
RUPA	--	--	--	--	--	--	--	--	--	<1	--	--	--	--	1
SASC	--	<1	4	9	17	14	14	16	16	16	16	18	15	27	31
VAME	--	--	--	--	--	--	1	2	4	2	2	5	3	3	3

Table 4-4.--Cover development of herb component ( $m^2/0.01$  ha or %), fig. 4-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	2	2	1	1	2	--	1	2	1	2	--
APAN	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--
EPAN	18	32	31	28	29	19	11	12	12	12	8	11	8	6	2
PTAQ	9	17	16	17	24	25	38	37	47	47	40	46	52	54	63
VIOR	--	--	--	--	--	--	--	--	--	--	1	--	--	1	1
Misc.	2	2	2	2	1	2	3	4	1	4	5	--	--	--	--

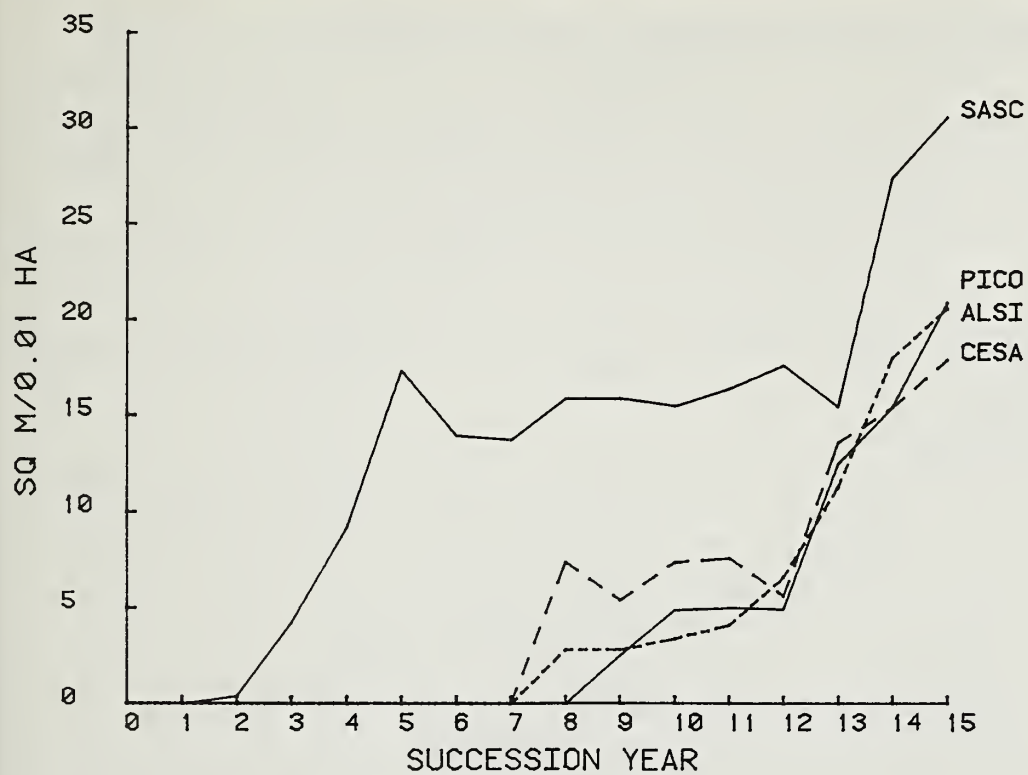


Figure 4-3.—Tree and shrub cover.

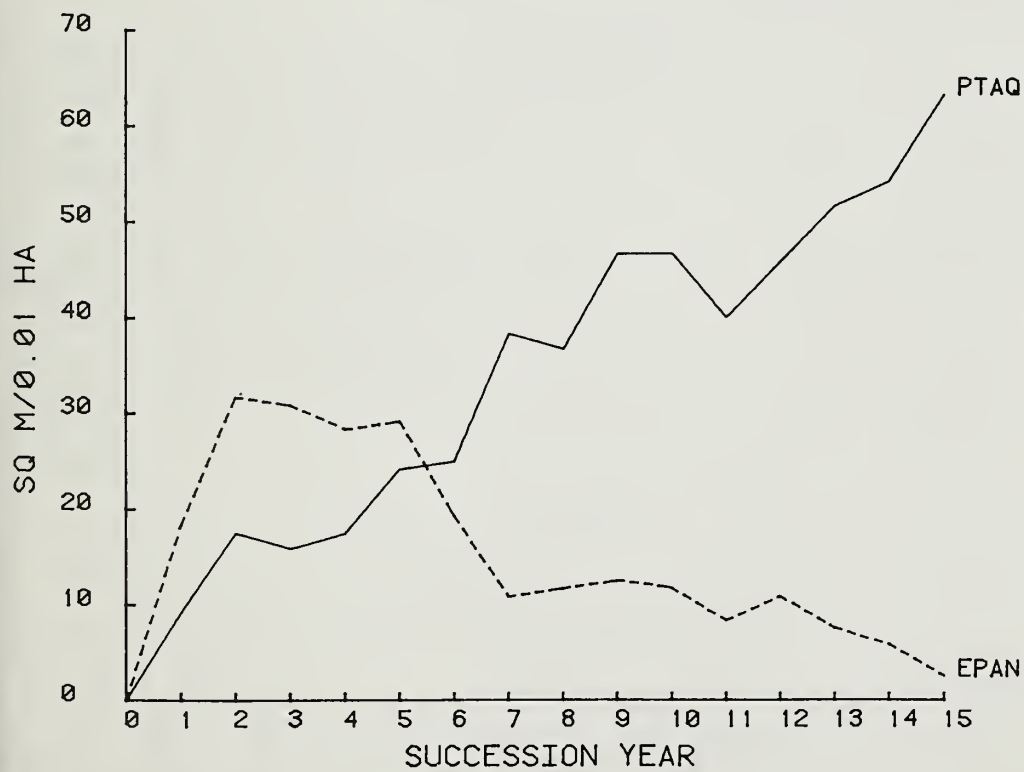


Figure 4-4.—Herb cover.

Table 4-5.--Volume development of tree and shrub components (m<sup>3</sup>/0.01 ha), fig. 4-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PICO	--	--	--	--	--	--	--	--	3.8	10.6	11.7	13.6	40.3	60.2	97.3
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	.1	--
POTRE	--	--	--	--	--	--	--	--	.1	.3	1.0	1.3	2.4	4.0	5.7
PSME	--	--	<0.1	--	0.2	--	--	1.6	3.2	7.2	9.2	13.9	25.2	28.0	47.0
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	7.6	7.6	9.0	10.0	15.6	18.8	35.2	41.9
CESA	--	--	--	--	--	--	--	10.5	9.3	14.4	15.8	9.6	28.9	40.7	49.6
LOUT	--	--	--	--	--	0.4	0.1	.3	.7	.8	.9	1.8	2.6	2.3	5.0
PAMY	--	--	--	--	--	--	--	.5	--	.2	.2	.2	.5	1.3	3.3
ROGY	--	--	.2	--	--	.1	.2	.3	.2	.7	.4	.3	.2	.3	--
RUPA	--	--	--	--	--	--	--	--	--	.2	--	--	--	--	.3
SASC	--	0.2	1.9	4.8	11.2	10.3	8.4	13.6	14.9	15.9	15.4	16.9	16.0	33.7	40.0
VAME	--	--	--	--	--	--	.3	.4	1.2	.7	.3	1.6	1.2	1.2	1.6

Table 4-6.--Volume development of herb component (m<sup>3</sup>/0.01 ha), fig. 4-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	0.6	1.3	0.1	0.2	0.5	--	0.2	0.7	0.2	0.7	--
APAN	--	--	--	--	--	--	--	--	--	--	--	.3	--	.1	--
EPAN	3.6	11.5	13.0	15.2	14.6	8.4	3.8	6.0	6.8	6.3	4.8	8.7	5.3	3.2	2.1
PTAQ	1.9	5.2	5.1	5.7	8.4	8.8	14.8	13.2	20.2	18.7	17.7	19.4	24.6	34.6	39.0
VIOR	--	--	--	--	--	--	--	--	--	--	<.1	--	--	<.1	<.1
Misc.	.2	.5	.4	.4	.2	.3	.4	1.3	.1	.9	1.2	--	--	--	--

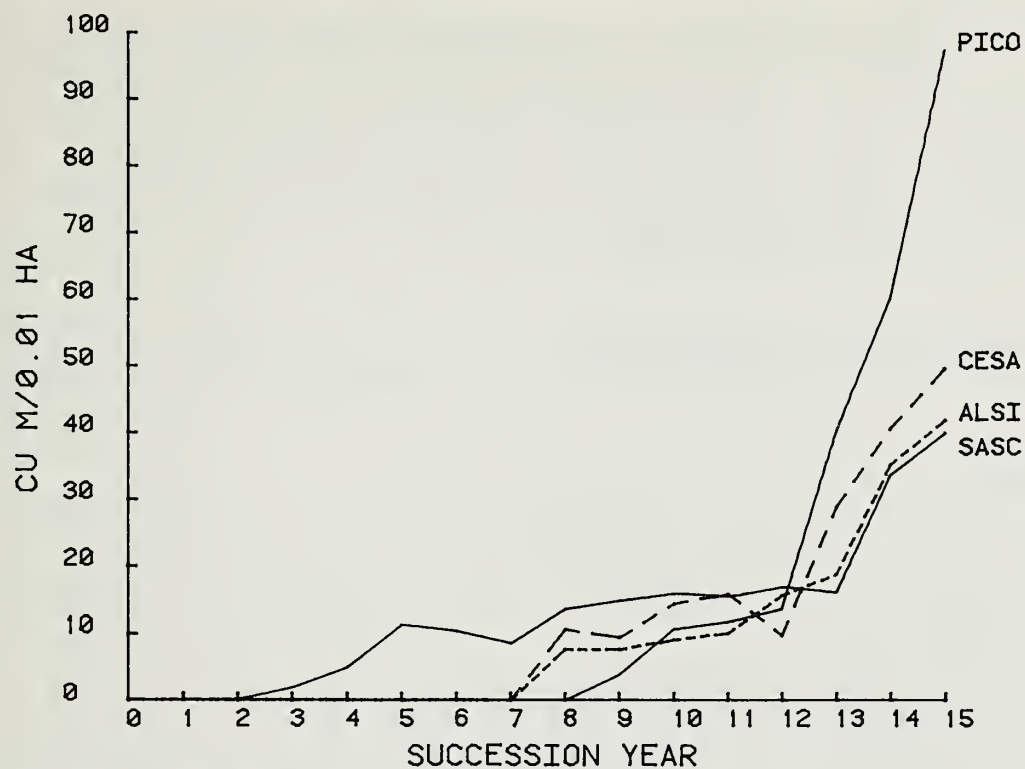


Figure 4-5.—Tree and shrub volume.



Figure 4-6.—Herb volume.



Site location and description: NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 3,950 ft; Exposure: East (Az. 110°);  
Slope: 25%

Forest cover type and tree size class: Western larch immature poletimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 14.4/0.01 ha; Average d.b.h.: 12.8 cm; Basal area: 2,571 cm<sup>2</sup>/0.01 ha

Shrub component: ALSI 60%, RUPA 20%, SASC 20% (Shrub density: 2.0/0.01 ha);

Other species present: ACGL, PAMY, ROGY, SOSC, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1800 hrs); Succession year 1:1968;

Fire intensity: 11,300 Btu/sec/ft; Rate of spread: 2.5 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter: Consumed; Duff: Almost completely consumed

Table 5-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 5-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	<1	1	3	5	6	11	13
Shrub	1	10	11	10	19	27	34	38	37	27	34	28	39	52	59
Herb	65	82	75	68	77	56	68	70	75	80	77	65	74	81	81
Total veg.	66	93	86	79	96	83	102	108	113	107	113	99	119	144	153

Table 5-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 5-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	0.8	1.1	6.7	13.4	17.4	31.3	46.1
Shrub	0.2	8.1	8.1	8.6	21.4	30.1	36.4	51.1	45.2	39.1	41.6	30.2	51.9	75.2	90.7
Herb	19.1	55.2	49.9	43.3	47.5	32.7	38.7	39.6	46.6	56.9	46.3	42.9	48.2	59.3	62.0
Total veg.	19.3	63.2	58.0	52.0	68.8	62.8	75.1	90.7	92.6	97.1	94.7	86.6	117.5	165.7	198.9



Figure 5-1.—Vegetative cover.



Figure 5-2.—Vegetative volume.

Table 5-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 5-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	<1	1	1	1	1	1	1
PSME	--	--	--	--	--	--	--	--	--	--	2	4	6	10	12
<u>Shrub</u>															
ALSI	--	2	--	--	2	--	5	3	2	6	3	3	8	7	12
PAMY	--	--	--	--	1	1	1	1	3	1	2	2	2	<1	2
RUPA	1	5	3	2	2	2	5	4	3	3	3	3	2	5	8
SASC	--	4	8	9	14	23	23	28	29	17	24	18	24	36	34
VAME	--	--	--	--	--	1	--	2	1	1	2	2	2	4	3

Table 5-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 5-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	1	3	2	2	2	--	1	2	2	3
APAN	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
CARO	--	--	--	--	--	--	1	--	1	1	1	1	1	1	--
DIHO	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
EPAN	46	52	46	39	37	18	18	22	19	17	17	12	8	11	8
FEAR	--	--	--	--	--	--	1	--	--	--	1	1	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	--	3	2	3	2	3
PTAQ	17	30	29	28	38	36	44	42	52	57	52	47	58	60	62
SMST	--	--	--	--	1	--	1	1	1	2	1	2	1	2	1
THOC	--	--	--	--	--	--	--	--	--	--	--	1	2	2	2
TRRE	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
Misc.	2	1	--	1	1	1	--	3	--	2	2	--	--	1	--



Figure 5-3.—Tree and shrub cover.



Figure 5-4.—Herb cover.

Table 5-5.--Volume development of tree and shrub components (m<sup>3</sup>/0.01 ha), fig. 5-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	0.8	1.1	2.0	1.6	1.2	1.6	1.5
PSME	--	--	--	--	--	--	--	--	--	--	4.8	11.9	16.2	29.7	44.7
<u>Shrub</u>															
ALSI	--	2.5	--	--	3.5	--	10.5	7.8	4.7	13.0	4.5	4.4	18.4	12.0	27.5
PAMY	--	--	--	--	.1	0.1	.3	.6	1.1	.3	.9	.9	.9	.2	.6
RUPA	0.2	2.1	1.4	0.3	.4	.5	1.4	1.3	1.3	1.1	.8	1.0	.9	1.8	3.3
SASC	--	3.4	6.7	8.3	17.3	29.3	24.2	40.6	37.7	24.4	35.2	23.4	30.9	60.1	57.9
VAME	--	--	--	--	--	.2	--	.8	.4	.3	.3	.5	.7	1.1	1.4

Table 5-6.--Volume development of herb component (m<sup>3</sup>/0.01 ha), fig. 5-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	0.4	1.1	0.6	0.5	0.8	--	0.3	1.0	1.7	1.6
APAN	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.3
CARO	--	--	--	--	--	--	.2	--	.1	.1	.1	.1	.1	.1	--
DIHO	--	--	--	--	--	--	--	--	--	--	--	--	--	.1	--
EPAN	13.8	38.1	29.2	25.8	21.7	9.4	9.1	12.1	11.1	14.3	9.5	9.2	4.8	6.2	5.4
FEAR	--	--	--	--	--	--	.1	--	--	--	.2	.2	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	--	.2	.1	.2	.1	.3
PTAQ	4.6	16.9	20.7	17.4	25.7	22.7	27.9	26.2	34.7	40.7	35.8	32.0	41.0	49.4	52.8
SMST	--	--	--	--	.1	--	.1	.1	.1	.3	.2	.3	.1	.3	.2
THOC	--	--	--	--	--	--	--	--	--	--	--	.6	1.0	1.3	1.5
TRRE	--	--	--	--	--	--	.2	--	--	--	--	--	--	--	--
Misc.	.7	.2	--	.1	.1	.1	--	.7	--	.7	.4	--	--	<.1	--



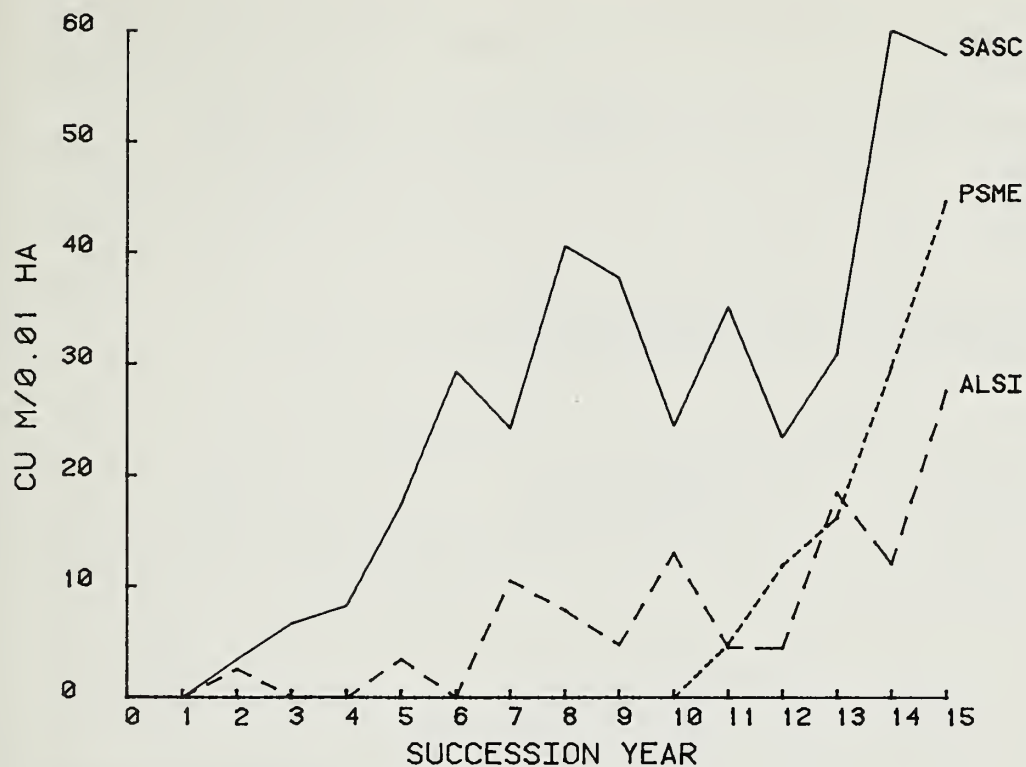


Figure 5-5.—Tree and shrub volume.



Figure 5-6.—Herb volume.

Site location and description: SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 4,200 ft; Exposure: North (Az. 355°); Slope: 30%

Forest cover type and tree size class: Western hemlock mature sawtimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 2.4/0.01 ha; Average d.b.h.: 43.7 cm; Basal area: 4,139 cm<sup>2</sup>/0.01 ha

Shrub component: Species present: VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1800-1900 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 11,300 Btu/sec/ft; Rate of spread: 1 to 2.5 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 6-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 6-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	1	1	5	7	8	14	11	15
Shrub	1	3	10	17	16	22	23	27	25	24	26	30	38	46	51
Herb	6	34	28	25	23	14	23	21	27	28	26	30	25	28	27
Total veg.	7	37	39	42	39	36	46	48	53	56	59	68	77	84	92

Table 6-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 6-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	0.2	0.3	4.2	8.0	10.4	24.0	27.7	44.4
Shrub	0.1	1.6	5.6	12.6	13.1	18.8	18.2	22.2	20.5	23.8	22.0	28.2	35.4	51.0	61.3
Herb	.5	14.2	12.2	10.0	9.8	4.4	8.4	8.4	9.9	12.4	7.9	12.8	9.4	10.3	8.6
Total veg.	.6	15.8	17.8	22.6	23.0	23.2	26.7	30.7	30.7	40.5	37.9	51.4	68.8	89.0	114.3



Figure 6-1.—Vegetative cover.

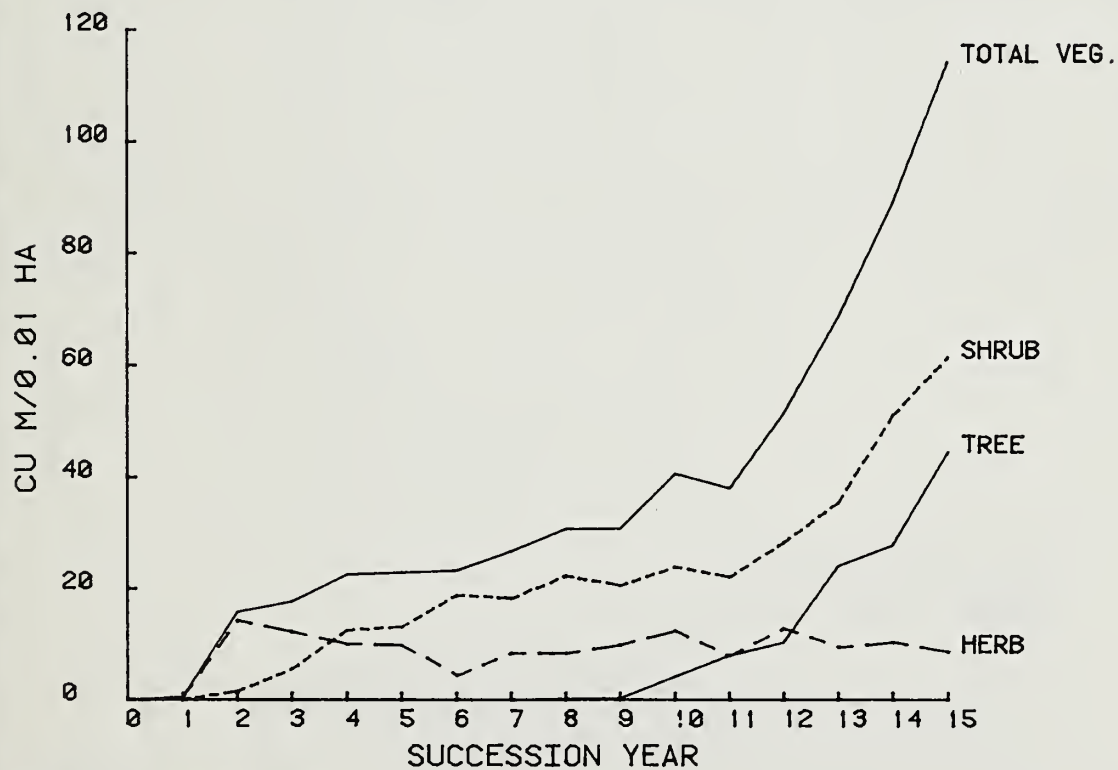


Figure 6-2.—Vegetative volume.

Table 6-3.--Cover development of tree and shrub components ( $\text{m}^2/0.01 \text{ ha}$  or %), fig. 6-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
ABGR	--	--	--	--	--	--	--	1	1	2	2	2	3	--	--
LAOC	--	--	--	--	--	--	--	--	--	--	--	--	<1	1	<1
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	1	2
POTRE	--	--	--	--	--	--	--	--	<1	<1	--	<1	1	--	<1
PSME	--	--	--	--	--	--	--	--	--	3	6	6	9	9	13
<u>Shrub</u>															
PAMY	--	--	--	--	--	--	--	1	1	1	--	--	3	2	4
SASC	1	3	10	17	16	22	23	26	25	23	26	30	36	43	43
VAME	--	--	--	--	--	--	--	--	--	--	--	--	--	1	4

Table 6-4.--Cover development of herb component ( $\text{m}^2/0.01 \text{ ha}$  or %), fig. 6-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	--	1	2	2	7	8	8	7	8	6
EPAN	6	34	28	25	22	14	22	18	20	13	11	10	7	9	8
HIAL	--	--	--	--	--	--	--	--	1	5	6	10	11	8	8
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2
Misc.	--	--	--	--	1	--	1	2	3	2	1	2	1	--	2



Figure 6-3.—Tree and shrub cover.

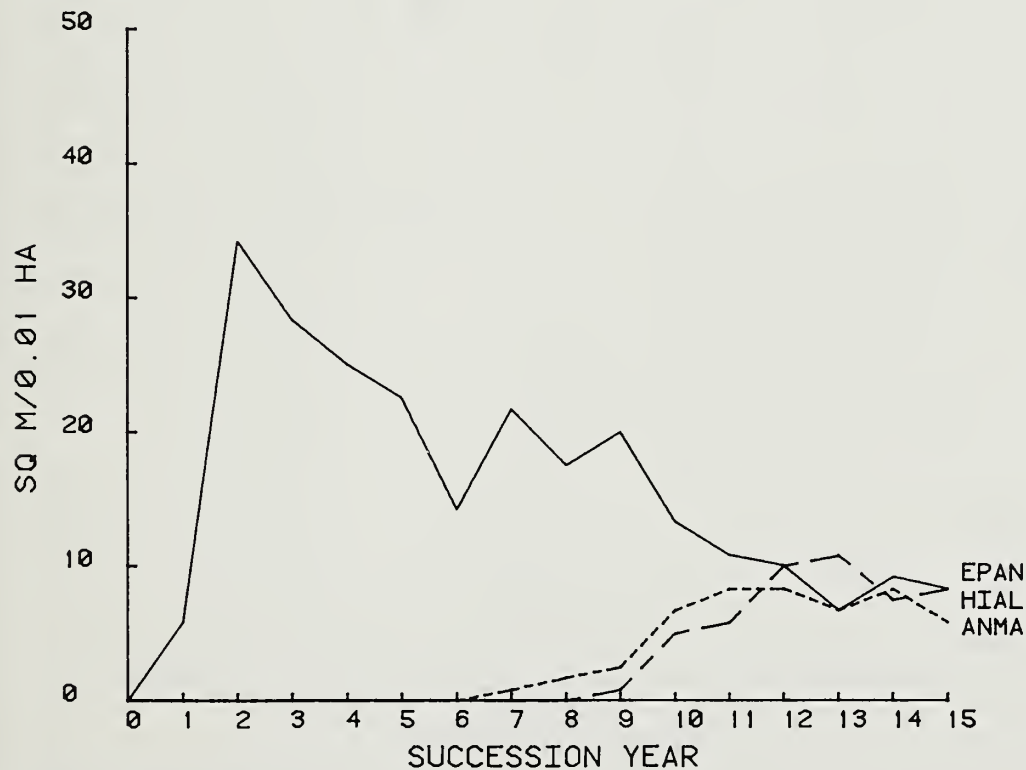


Figure 6-4.—Herb cover.



Table 6-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 6-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
ABGR	--	--	--	--	--	--	--	0.2	0.2	0.5	0.7	0.7	2.5	--	--
LAOC	--	--	--	--	--	--	--	--	--	--	--	--	.7	1.4	1.1
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	.5	1.3
POTRE	--	--	--	--	--	--	--	--	.1	.2	--	.2	.6	--	.4
PSME	--	--	--	--	--	--	--	--	--	3.5	7.3	9.5	20.2	25.8	41.6
<u>Shrub</u>															
PAMY	--	--	--	--	--	--	--	.3	.4	.5	--	--	1.5	1.5	2.4
SASC	0.1	1.6	5.6	12.6	13.1	18.8	18.2	21.8	20.1	23.3	22.0	28.2	33.9	49.2	55.4
VAME	--	--	--	--	--	--	--	--	--	--	--	--	--	.3	3.5

Table 6-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 6-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	--	0.3	0.8	1.1	2.9	3.1	2.8	2.6	3.6	2.4
EPAN	0.5	14.2	12.2	10.0	9.6	4.4	7.9	7.2	8.1	6.9	3.7	6.0	3.0	3.7	4.6
HIAL	--	--	--	--	--	--	--	--	<.1	1.6	.9	3.5	3.5	2.9	1.2
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	--	.1	.1
Misc.	--	--	--	--	.2	--	.2	.4	.6	1.0	.2	.5	.3	--	.2



Figure 6-5.—Tree and shrub volume.

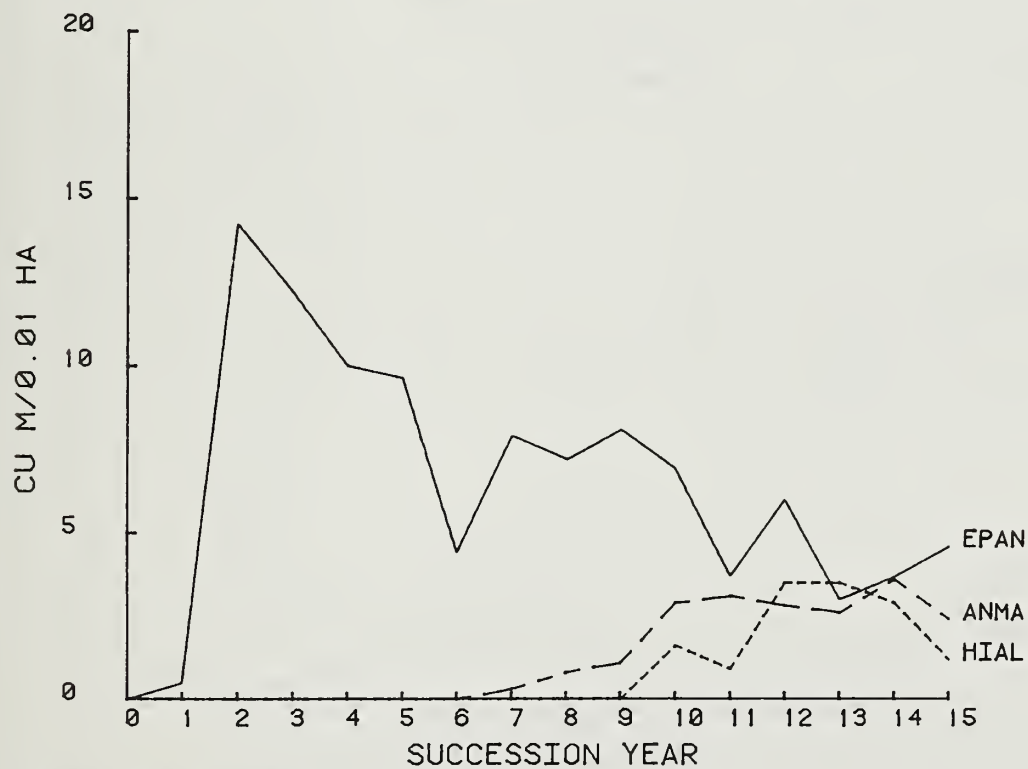


Figure 6-6.—Herb volume.

Site location and description: SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 4,300 ft; Exposure: Southeast (Az. 130°); Slope: 15%

Forest cover type and tree size class: Western redcedar mature sawtimber, 70 through 100% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 0.4/0.01 ha; Average d.b.h.: 56.0 cm; Basal area: 985 cm<sup>2</sup>/0.01 ha

Shrub component: Species present: RULE, RUPA, SARA, VAME

Disturbance treatment:

Clearcut: Mature *Thuja plicata* forest logged prior to fire;

Wildfire: September 1, 1967 (1800 hrs); Succession year 1:1968;

Fire intensity: 11,300 Btu/sec/ft; Rate of spread: 2.5 mi/h;

Fire severity: R-N index: 3-M; Litter-duff: Consumed

Table 7-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 7-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	<1	1	1	4	6	5	6	10
Shrub	2	8	7	13	22	29	31	40	44	46	45	47	65	97	90
Herb	32	73	40	37	33	33	38	37	35	39	39	37	42	41	47
Total veg.	33	82	47	51	55	62	70	77	80	86	88	89	111	144	148

Table 7-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 7-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	0.1	0.4	1.3	4.2	8.9	9.3	16.0	30.9
Shrub	0.2	4.4	5.3	8.1	15.0	23.9	22.9	42.9	46.3	44.4	34.9	34.3	50.8	100.1	102.4
Herb	11.1	59.9	23.5	18.5	16.2	15.9	19.7	15.3	13.8	15.7	16.8	20.4	19.2	19.0	19.9
Total veg.	11.2	64.4	28.8	26.6	31.2	39.8	42.6	58.3	60.4	61.4	55.9	63.6	79.3	135.1	153.2



Figure 7-1.—Vegetative cover.

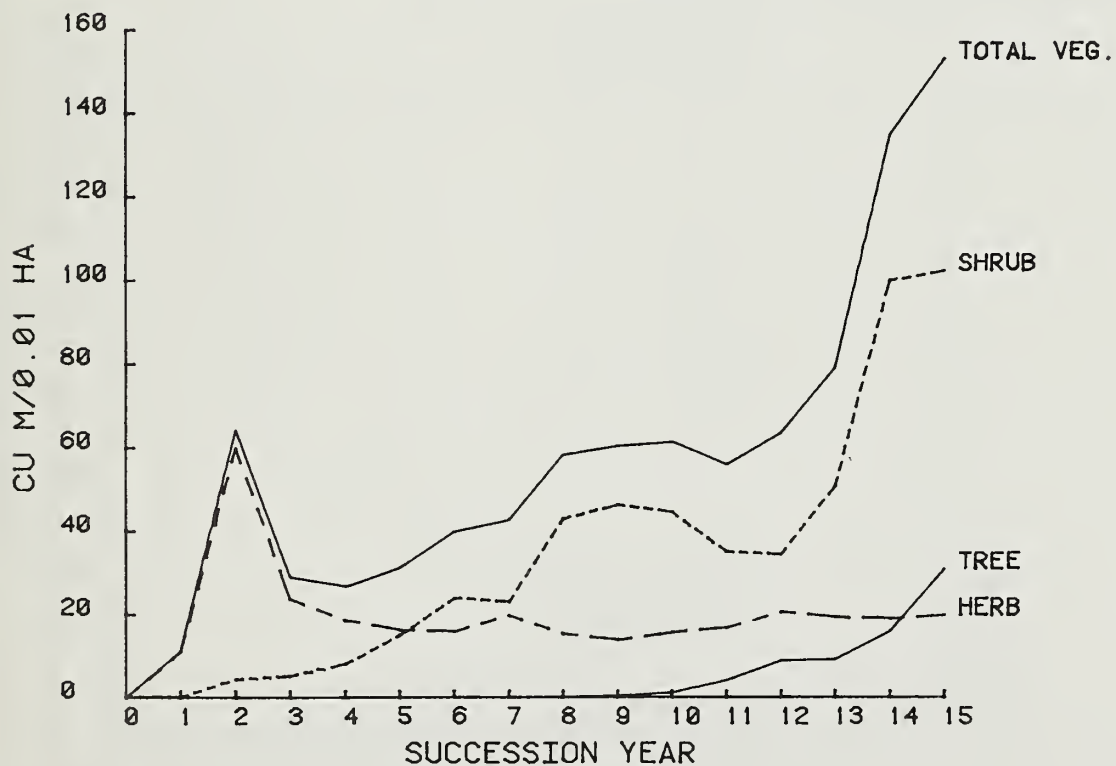


Figure 7-2.—Vegetative volume.

Table 7-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 7-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
LAOC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
PIEN	--	--	--	--	--	--	--	<1	1	1	4	5	3	3	4
PICO	--	--	--	--	--	--	--	--	--	--	--	--	1	1	1
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1
PSME	--	--	--	--	--	--	--	--	--	--	--	1	1	2	4
<u>Shrub</u>															
PAMY	--	--	--	--	2	1	2	2	3	7	14	19	30	39	37
RULE	--	--	--	1	1	2	--	--	1	1	--	1	--	--	--
RUPA	2	6	2	5	5	8	11	12	11	11	10	8	10	12	12
SASC	--	2	4	8	14	18	18	26	28	27	21	19	25	45	41
SARA	--	<1	1	--	--	--	1	1	1	--	1	<1	1	<1	<1

Table 7-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 7-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AGAL	--	--	--	--	--	--	--	--	--	--	--	--	1	1	1
ANMA	--	--	--	--	1	2	8	13	13	16	13	5	4	8	7
CARO	--	--	--	--	--	--	1	--	1	--	1	1	1	1	2
CIAR	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
CLUN	--	--	--	--	--	--	--	--	--	1	1	1	2	1	2
DIHO	--	--	--	--	1	1	2	1	2	1	1	1	--	1	2
EPAN	30	72	37	32	32	24	26	19	15	13	16	18	14	14	11
ERAC	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
FEAR	--	--	--	--	--	--	--	--	--	--	1	2	2	2	2
HIAL	--	--	--	--	--	--	--	--	--	1	2	6	6	5	2
PHPR	--	--	--	--	--	--	1	--	--	--	1	1	--	--	--
PTAQ	1	--	1	3	--	4	--	2	2	3	2	1	11	6	18
SMST	--	--	--	--	--	--	--	--	--	--	--	1	1	1	1
SOCA	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Misc.	1	1	2	2	--	2	1	1	2	4	1	--	1	--	--



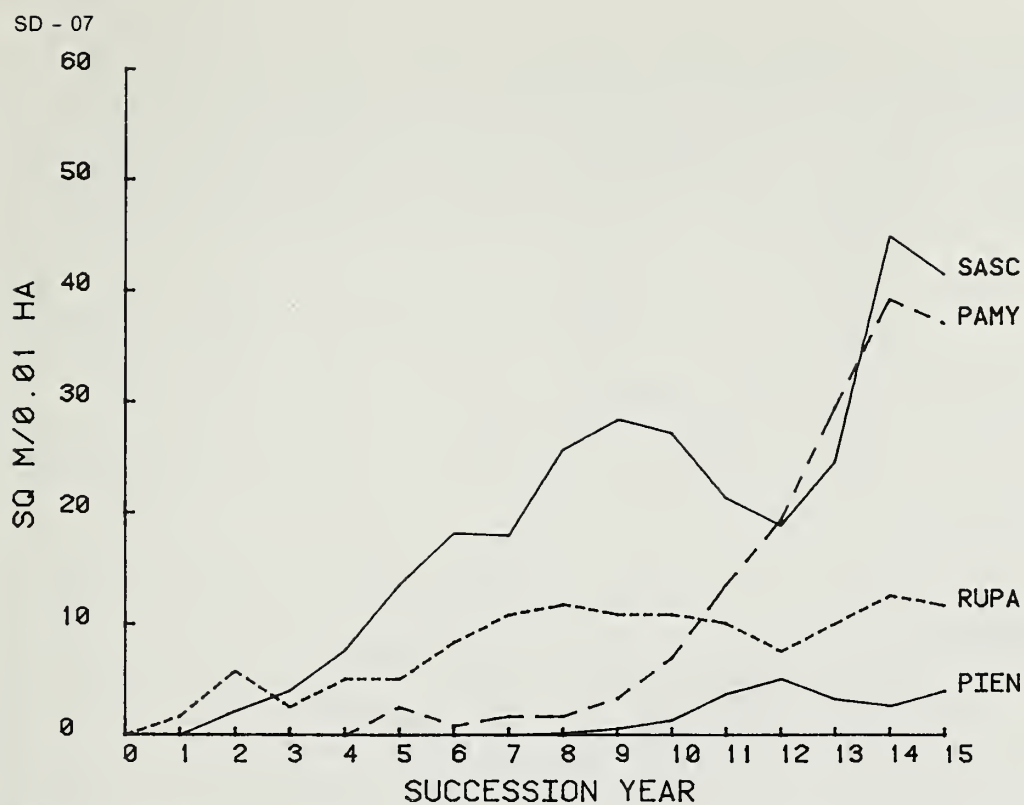


Figure 7-3.—Tree and shrub cover.

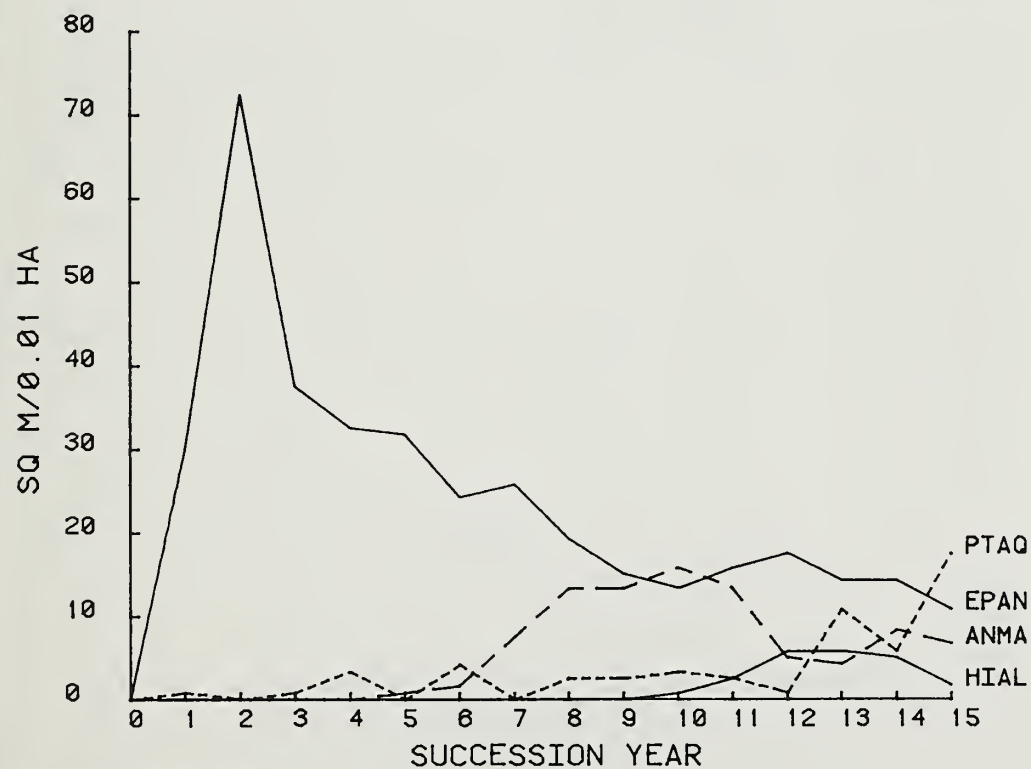


Figure 7-4.—Herb cover.

Table 7-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 7-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
LAOC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.4
PIEN	--	--	--	--	--	--	--	0.1	0.4	1.3	4.2	7.1	6.2	5.8	9.6
PICO	--	--	--	--	--	--	--	--	--	--	--	--	1.4	3.0	3.3
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.1
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	.8	1.8
PSME	--	--	--	--	--	--	--	--	--	--	--	1.8	1.7	6.4	13.7
<u>Shrub</u>															
PAMY	--	--	--	--	0.4	0.1	0.3	.3	.9	2.6	5.9	9.3	15.0	23.1	23.7
RULE	--	--	--	0.1	.2	.6	--	--	.4	.2	--	.2	--	--	--
RUPA	0.2	2.1	0.8	.6	.9	1.3	2.3	2.5	2.3	2.0	1.8	1.2	2.2	3.6	3.5
SASC	--	2.1	4.2	7.4	13.5	21.9	19.7	39.1	41.9	39.7	26.9	23.3	33.3	73.2	74.9
SARA	--	.2	.3	--	--	--	.6	1.0	.7	--	.3	.3	.3	.1	.3

Table 7-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 7-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AGAL	--	--	--	--	--	--	--	--	--	--	--	--	0.4	0.6	0.4
ANMA	--	--	--	--	0.2	0.8	3.0	4.7	4.6	5.3	4.9	1.1	1.3	3.7	3.0
CARO	--	--	--	--	--	--	.2	--	.1	--	.1	.1	.1	.1	.2
CIAR	--	--	--	--	--	--	.1	--	--	--	--	--	--	--	--
CLUN	--	--	--	--	--	--	--	--	--	.1	.2	<.1	.1	<.1	.1
DIHO	--	--	--	--	.4	.3	.7	.4	.7	.3	.4	.4	--	.3	.6
EPAN	10.7	59.4	22.9	17.2	15.7	13.3	14.9	9.4	7.4	8.1	8.3	12.8	8.1	7.5	6.6
ERAC	--	--	--	--	--	--	--	--	--	--	--	.4	--	--	--
FEAR	--	--	--	--	--	--	--	--	--	--	.5	.6	.5	1.0	.6
HIAL	--	--	--	--	--	--	--	--	--	.2	.8	3.8	3.9	3.0	.2
PHPR	--	--	--	--	--	--	.8	--	--	--	.8	.6	--	--	--
PTAQ	.2	--	.4	.8	--	1.0	--	.4	.7	.8	.6	.3	4.5	2.4	7.8
SMST	--	--	--	--	--	--	--	--	--	--	--	.2	.2	.2	.2
SOCA	--	--	--	--	--	--	--	--	--	--	--	--	--	.3	.4
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<.1
Misc.	.1	.5	.2	.5	--	.5	.1	.3	.3	.9	.2	--	.2	--	--

SD - 07

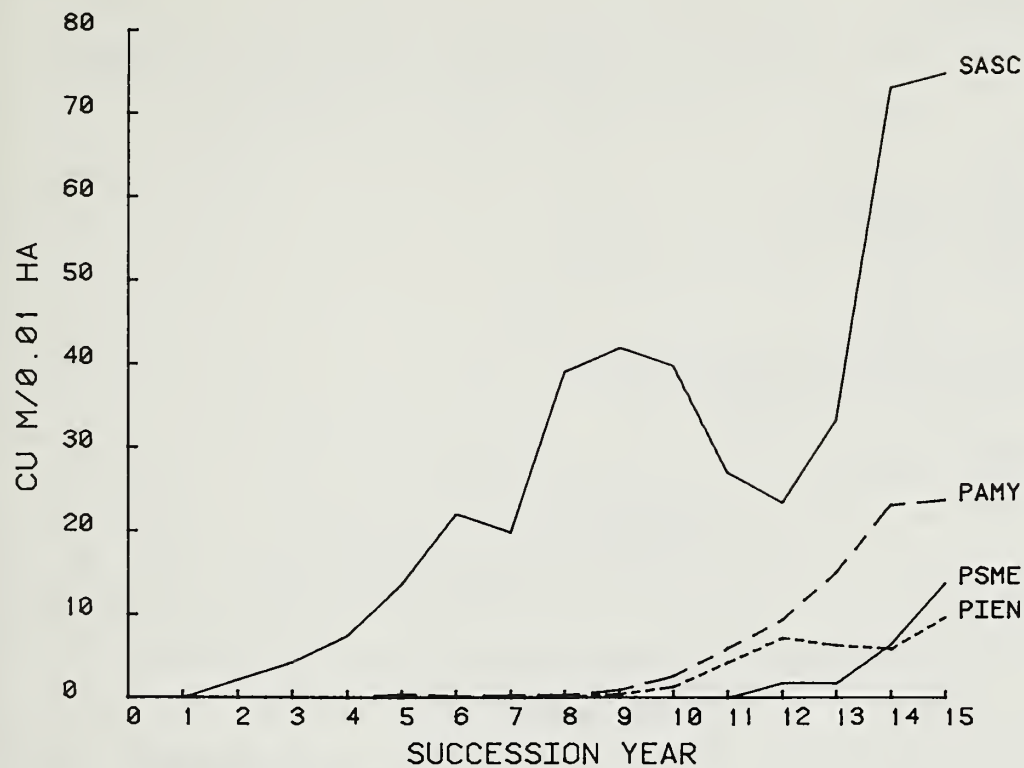


Figure 7-5.—Tree and shrub volume.

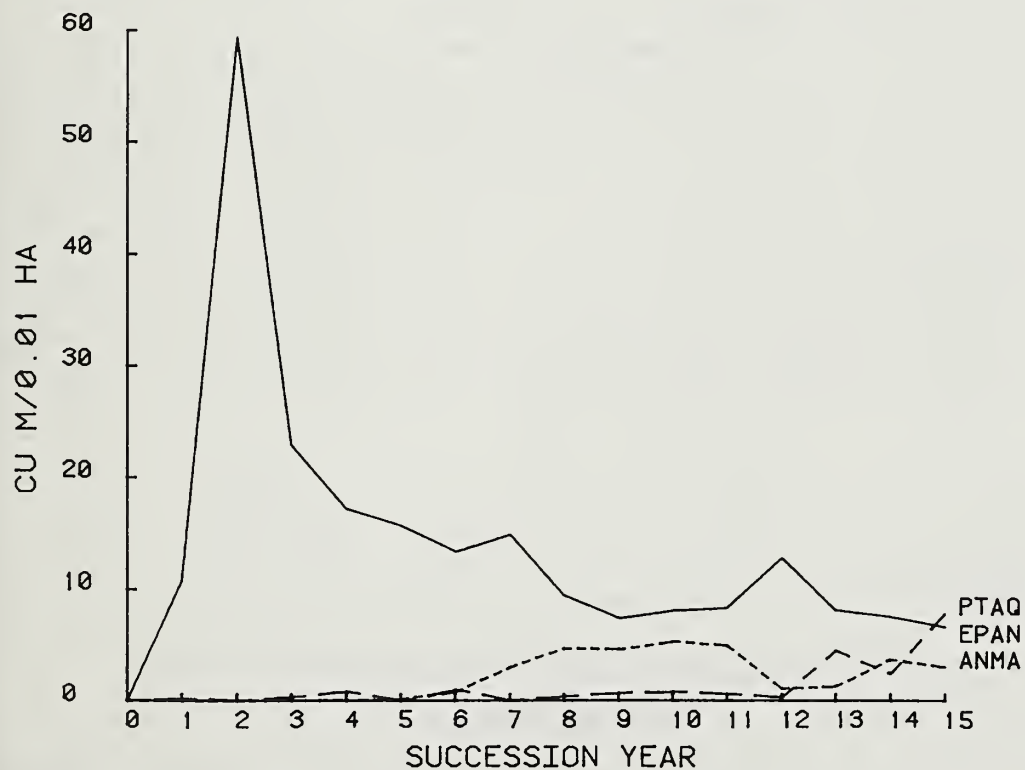


Figure 7-6.—Herb volume.

SUNDANCE BURN: 1802-16 Study Area SD-08

Site location and description: NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 4,150 ft; Exposure: Northwest (Az. 320°); Slope: 50%

Forest cover type and tree size class: Western hemlock mature sawtimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: No prefire trees apparent

Shrub component: RULE 75%, SARA 25% (Shrub density: 1.6/0.01 ha);

Other species present: RUPA, VAME

Disturbance treatment:

Clearcut: Sawtimber logged prior to fire;

Wildfire: September 1, 1967 (1800 hrs); Succession year 1:1968;

Fire intensity: 11,300 Btu/sec/ft; Rate of spread: 2.5 mi/h;

Fire severity: R-N index: 3-M; Litter-duff: Consumed

Table 8-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 8-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	--	1	1	3	4	9
Shrub	1	16	15	19	25	31	44	64	--	50	52	50	55	76	83
Herb	44	48	37	32	30	14	22	21	--	29	29	34	29	46	43
Total veg.	45	64	51	50	55	45	66	85	--	79	82	86	87	126	135

Table 8-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 8-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	--	0.2	0.4	1.3	6.7	19.2
Shrub	0.2	9.3	7.9	9.0	14.3	19.2	26.9	60.2	--	46.9	39.6	43.1	50.4	80.1	85.9
Herb	12.6	35.2	20.1	18.8	17.2	7.5	9.1	11.4	--	14.1	12.0	16.5	12.5	21.1	14.9
Total veg.	12.8	44.5	28.0	27.8	31.4	26.7	36.1	71.7	--	61.0	51.8	60.0	64.2	107.9	120.0

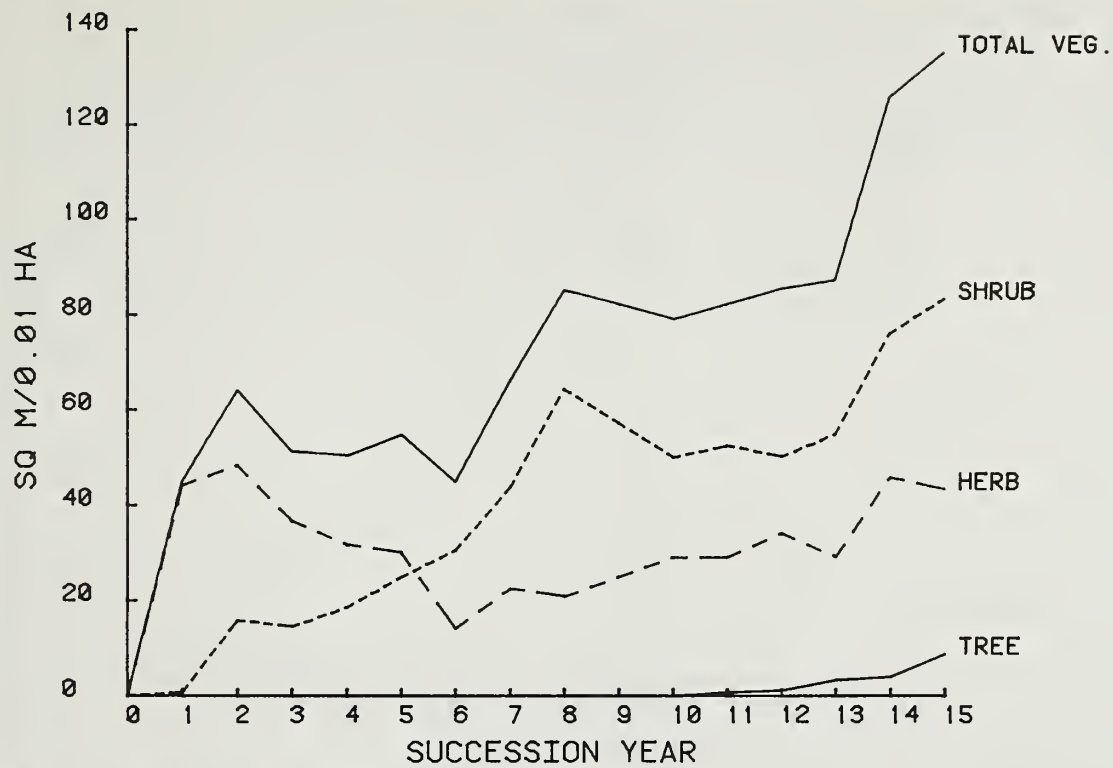


Figure 8-1.—Vegetative cover.

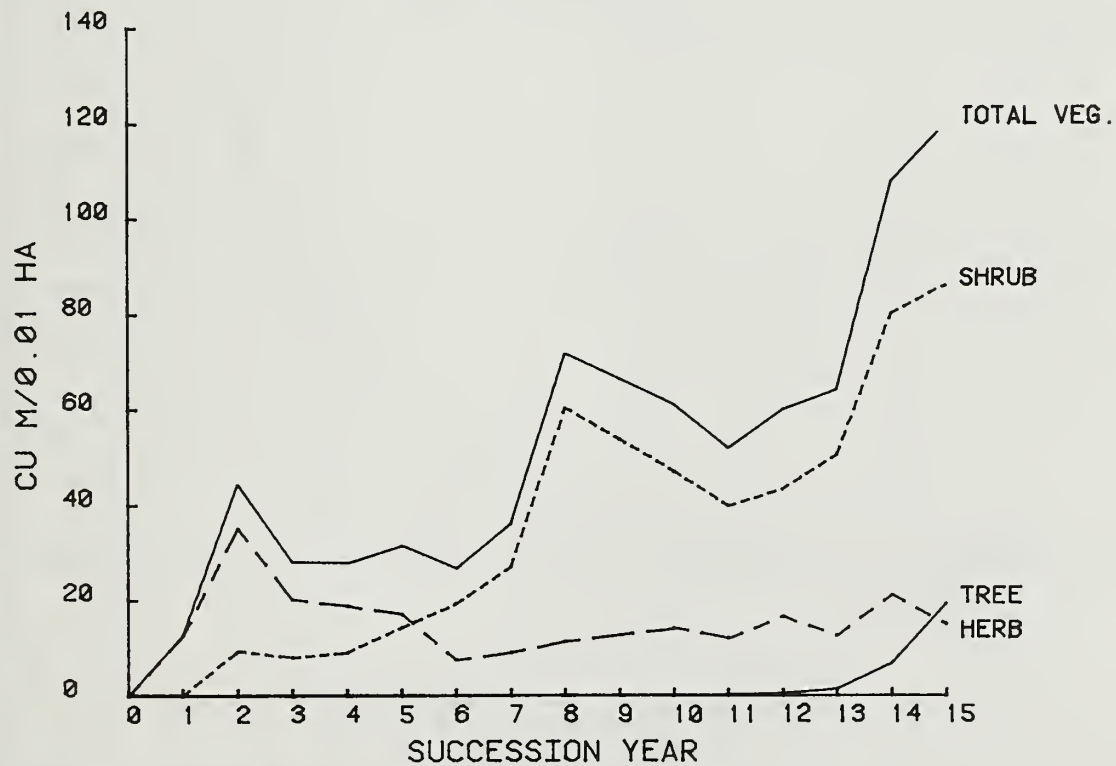


Figure 8-2.—Vegetative volume.



Table 8-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 8-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PIEN	--	--	--	--	--	--	--	--	--	--	1	1	2	1	1
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	--
PSME	--	--	--	--	--	--	--	--	--	--	--	<1	1	3	8
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	--	--	--	1	1	2
PAMY	--	--	--	--	--	--	--	--	--	--	--	1	1	2	2
RUID	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--
RULE	--	4	1	1	1	2	1	1	--	<1	1	1	1	1	--
RUPA	1	2	2	2	3	6	8	14	--	14	16	12	13	22	27
SASC	--	7	11	15	21	22	33	48	--	36	36	37	40	51	52
SARA	--	2	1	1	--	--	1	1	--	--	--	--	--	--	--

Table 8-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 8-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AGAL	--	--	--	--	--	--	--	--	--	--	1	1	1	1	1
ANMA	--	--	--	--	--	--	1	3	--	7	12	10	7	8	5
CAMI	--	--	--	--	--	--	--	--	--	--	--	1	--	8	9
CLUN	--	--	--	--	--	--	1	1	--	2	2	2	2	4	3
DIHO	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
EPAN	42	47	33	28	27	12	19	12	--	16	11	12	13	16	9
HIAL	--	--	--	--	--	--	--	--	--	--	2	3	5	6	8
PTAQ	--	--	--	--	--	--	--	--	--	--	1	1	--	1	2
SOCA	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1
TITRU	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1
VIGL	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
VIOR	--	--	--	--	--	--	--	--	--	--	--	2	--	2	2
Misc.	2	2	3	3	2	2	2	4	--	5	2	1	1	--	1



Figure 8-3.—Tree and shrub cover.

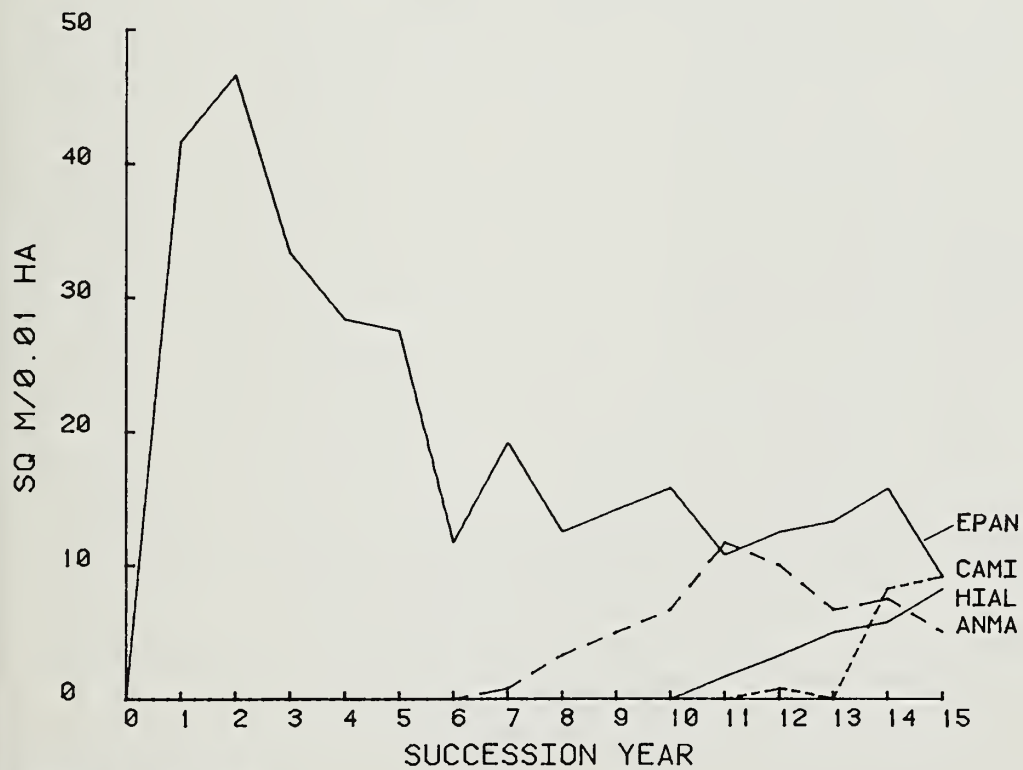


Figure 8-4.—Herb cover.

Table 8-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 8-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PIEN	--	--	--	--	--	--	--	--	--	--	0.2	0.2	0.7	0.2	0.5
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	.3	--
PSME	--	--	--	--	--	--	--	--	--	--	--	.2	.6	6.2	18.7
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	--	--	--	1.4	3.7	5.7
PAMY	--	--	--	--	--	--	--	--	--	--	--	.2	.2	.6	1.0
RUID	--	--	--	--	--	--	--	0.9	--	--	--	--	--	--	--
RULE	--	1.9	0.4	0.3	0.3	0.8	0.6	.5	--	0.1	.4	.4	.4	.4	--
RUPA	0.2	.6	.7	.4	.9	1.2	2.1	6.3	--	5.9	6.3	4.9	5.0	9.1	13.8
SASC	--	4.4	5.3	6.4	13.0	17.2	22.3	50.6	--	40.9	32.9	37.5	43.4	66.3	65.5
SARA	--	2.4	1.5	2.0	--	--	2.0	2.0	--	--	--	--	--	--	--

Table 8-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 8-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AGAL	--	--	--	--	--	--	--	--	--	--	0.6	0.6	0.7	0.7	0.6
ANMA	--	--	--	--	--	--	0.6	2.5	--	2.1	5.1	4.3	2.7	3.3	2.2
CAMI	--	--	--	--	--	--	--	--	--	--	--	.4	--	5.0	3.3
CLUN	--	--	--	--	--	--	.1	.1	--	.1	.1	.2	.2	.4	.2
DIHO	--	--	--	--	--	--	--	--	--	--	--	.2	--	--	--
EPAN	12.2	34.8	19.5	18.1	16.6	7.0	8.4	7.7	--	11.2	5.7	9.5	7.8	10.2	6.2
HIAL	--	--	--	--	--	--	--	--	--	--	.1	.9	1.0	1.2	1.3
PTAQ	--	--	--	--	--	--	--	--	--	--	.2	.2	--	.2	.6
SOCA	--	--	--	--	--	--	--	--	--	--	--	--	--	.1	.2
TITRU	--	--	--	--	--	--	--	--	--	--	--	.1	--	--	--
VIGL	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.1
VIOR	--	--	--	--	--	--	--	--	--	--	--	.1	--	.1	.1
Misc.	.4	.4	.6	.7	.6	.4	.1	1.2	--	.7	.3	.2	.1	--	.1

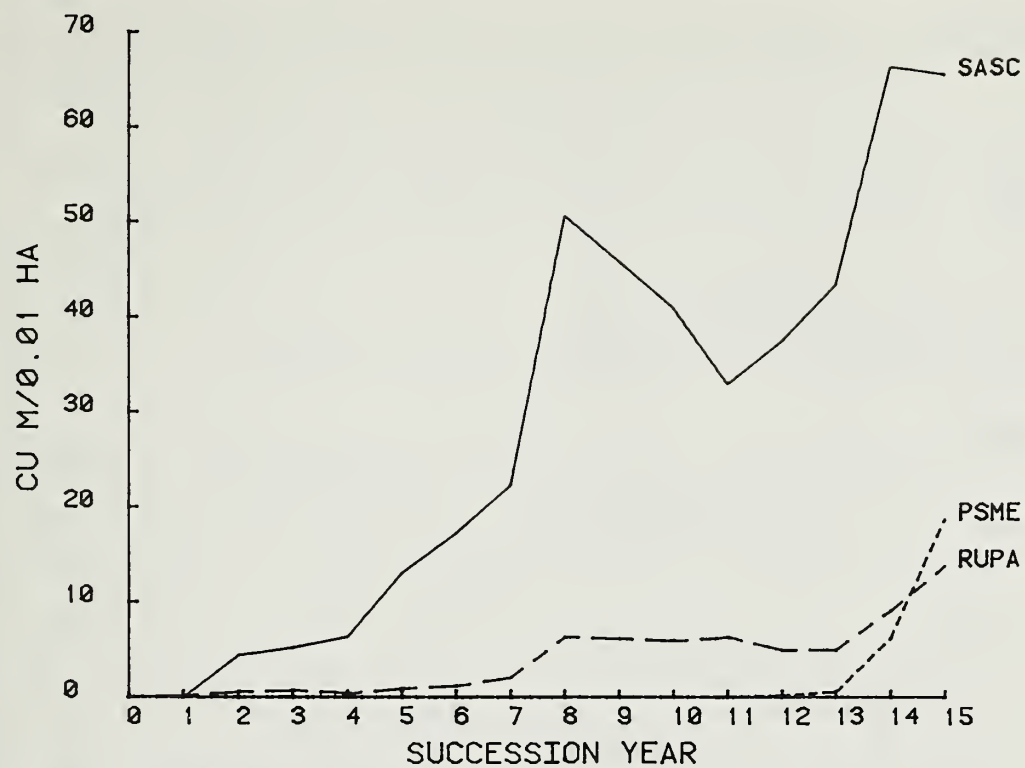


Figure 8-5.—Tree and shrub volume.

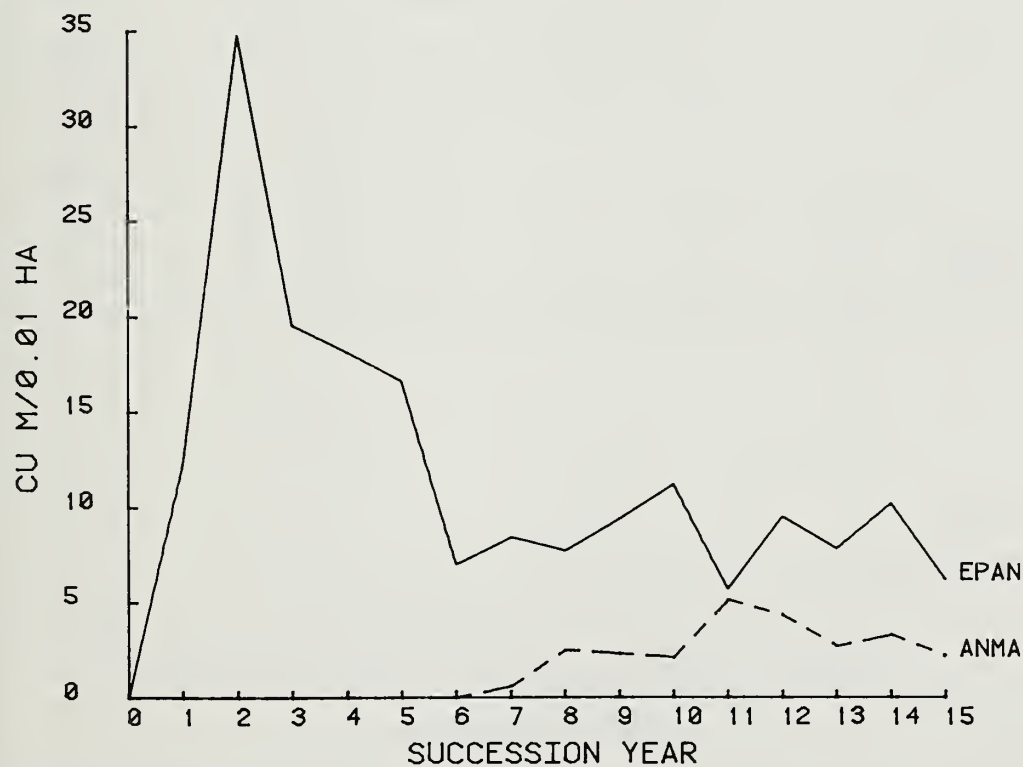


Figure 8-6.—Herb volume.

Site location and description: NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 4,100 ft; Exposure: North (Az. 0°); Slope: 45%

Forest cover type and tree size class: Western hemlock mature sawtimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 3.2/0.01 ha; Average d.b.h.: 34.5 cm; Basal area: 3,335 cm<sup>2</sup>/0.01 ha

Shrub component: Species present: LOU, OPHO, RULE, RUPA, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1800 hrs); Succession year 1:1968;

Fire intensity: 11,300 Btu/sec/ft; Rate of spread: 2.5 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 9-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 9-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	5	5	5	7	11	14
Shrub	3	6	17	21	22	25	41	57	--	37	46	44	49	94	88
Herb	45	62	45	42	40	27	27	36	--	52	49	56	52	62	72
Total veg.	48	68	62	63	62	52	68	92	--	94	100	106	108	167	174

Table 9-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 9-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	9.5	9.6	11.8	10.8	29.6	46.1
Shrub	0.3	2.3	6.4	7.8	11.8	15.7	21.0	40.3	--	27.1	33.6	28.8	36.5	109.0	131.8
Herb	9.5	24.4	23.6	19.2	19.1	9.4	7.0	13.1	--	23.0	19.8	25.7	22.4	28.1	32.5
Total veg.	9.8	26.7	30.0	27.0	30.9	25.1	28.0	53.4	--	59.6	63.0	66.3	69.7	166.7	210.4



Figure 9-1.—Vegetative cover.



Figure 9-2.—Vegetative volume.



Table 9-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 9-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1
PSME	--	--	--	--	--	--	--	--	--	5	5	5	7	11	14
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	4	7	6	15	46	48
LOUT	--	--	--	--	--	--	--	1	--	1	1	--	--	2	2
PAMY	--	--	--	--	--	--	--	--	--	1	--	2	2	2	4
RULE	--	--	--	--	--	--	--	5	--	1	1	<1	--	--	--
RUPA	--	--	1	1	2	2	5	7	--	7	7	8	7	11	9
SASC	2	6	16	20	19	23	36	44	--	24	31	28	24	31	20
SARA	2	--	1	--	--	--	--	--	--	--	--	--	--	--	--
VAME	--	--	--	--	--	--	--	--	--	--	--	1	1	4	4

Table 9-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 9-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ADBI	--	--	--	--	--	--	--	--	--	--	--	--	1	2	--
ANMA	--	--	--	--	--	1	5	6	--	11	9	8	5	4	3
CAMI	--	--	--	--	--	--	--	--	--	2	3	8	6	9	7
CLUN	--	--	--	--	--	--	--	--	--	--	--	--	1	2	2
DAGL	--	--	--	--	--	--	1	--	--	1	--	--	1	1	1
EPAN	34	48	38	33	29	10	5	11	--	11	9	8	8	10	9
FEAR	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	--	--	1	3	2	3
PTAQ	6	9	2	5	9	12	12	15	--	19	23	28	27	31	42
TITRU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
TRRE	--	--	--	--	--	--	1	--	--	1	1	--	--	--	--
VIGL	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	--	1	2
Misc.	5	5	4	4	2	3	3	4	--	7	2	2	--	--	--

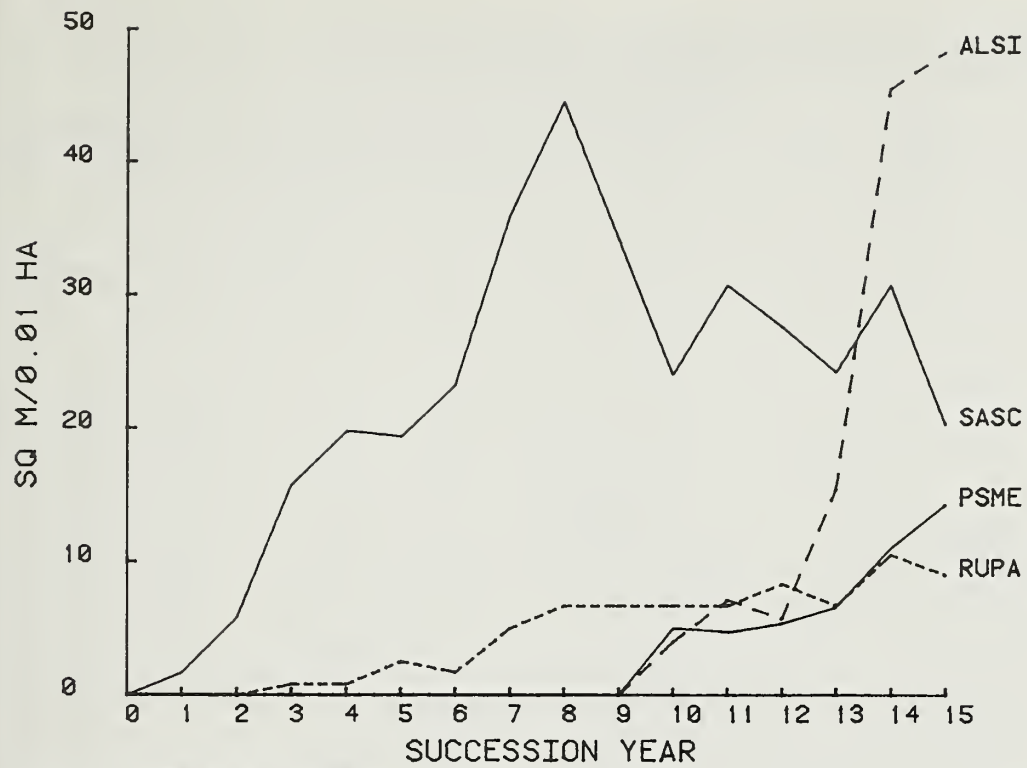


Figure 9-3.—Tree and shrub cover.

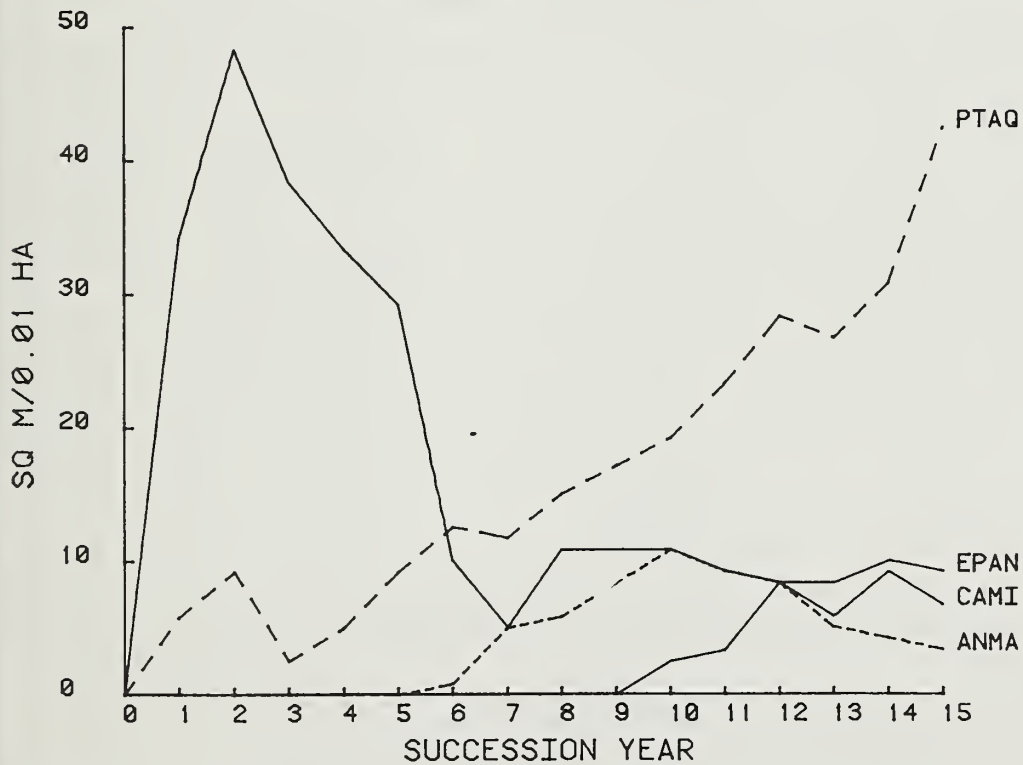


Figure 9-4.—Herb cover.

Table 9-5.--Volume development of tree and shrub components (m<sup>3</sup>/0.01 ha), fig. 9-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.1
PSME	--	--	--	--	--	--	--	--	--	9.5	9.6	11.8	10.8	29.6	46.0
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	7.2	11.2	5.9	16.5	71.6	100.4
LOUT	--	--	--	--	--	--	--	0.3	--	.5	.7	--	--	1.2	1.5
PAMY	--	--	--	--	--	--	--	--	--	.4	--	.9	.9	1.2	2.2
RULE	--	--	--	--	--	--	--	4.5	--	.7	.4	.1	--	--	--
RUPA	--	--	0.2	0.2	0.8	0.7	1.3	1.9	--	2.2	2.5	3.4	2.7	4.6	4.0
SASC	0.2	2.3	6.0	7.6	11.1	15.1	19.8	33.5	--	16.1	18.7	18.4	16.2	29.0	21.1
SARA	.1	--	.2	--	--	--	--	--	--	--	--	--	--	--	--
VAME	--	--	--	--	--	--	--	--	--	--	--	.2	.2	1.6	2.5

Table 9-6.--Volume development of herb component (m<sup>3</sup>/0.01 ha), fig. 9-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ADBI	--	--	--	--	--	--	--	--	--	--	--	--	<0.1	0.3	--
ANMA	--	--	--	--	--	0.2	1.9	2.0	--	4.9	3.8	3.4	1.5	1.3	1.2
CAMI	--	--	--	--	--	--	--	--	--	1.6	1.8	4.2	2.4	5.7	2.1
CLUN	--	--	--	--	--	--	--	--	--	--	--	--	<1	.1	.3
DAGL	--	--	--	--	--	--	.2	--	--	.2	--	--	.3	.4	.7
EPAN	7.6	20.9	21.6	16.6	16.1	4.9	1.5	5.4	--	7.1	4.9	6.3	5.4	5.9	5.6
FEAR	--	--	--	--	--	--	--	--	--	--	.3	--	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	--	--	<.1	.2	.1	.6
PTAQ	1.2	2.6	.6	1.4	2.6	3.1	3.1	4.7	--	7.9	8.4	11.6	12.4	14.3	21.8
TITRU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.2
TRRE	--	--	--	--	--	--	.1	--	--	.4	.2	--	--	--	--
VIGL	--	--	--	--	--	--	--	--	--	--	--	--	.1	--	--
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	--	<.1	.1
Misc.	.7	.9	1.4	1.1	.4	1.3	.2	.9	--	.9	.4	.2	--	--	--

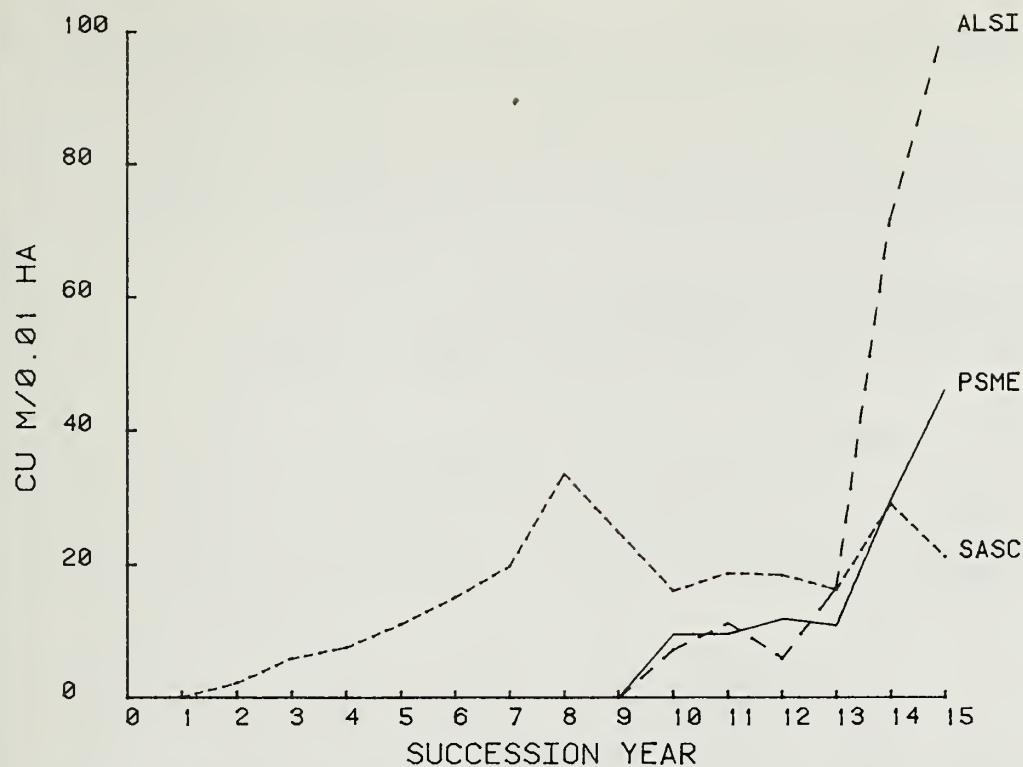


Figure 9-5.—Tree and shrub volume.

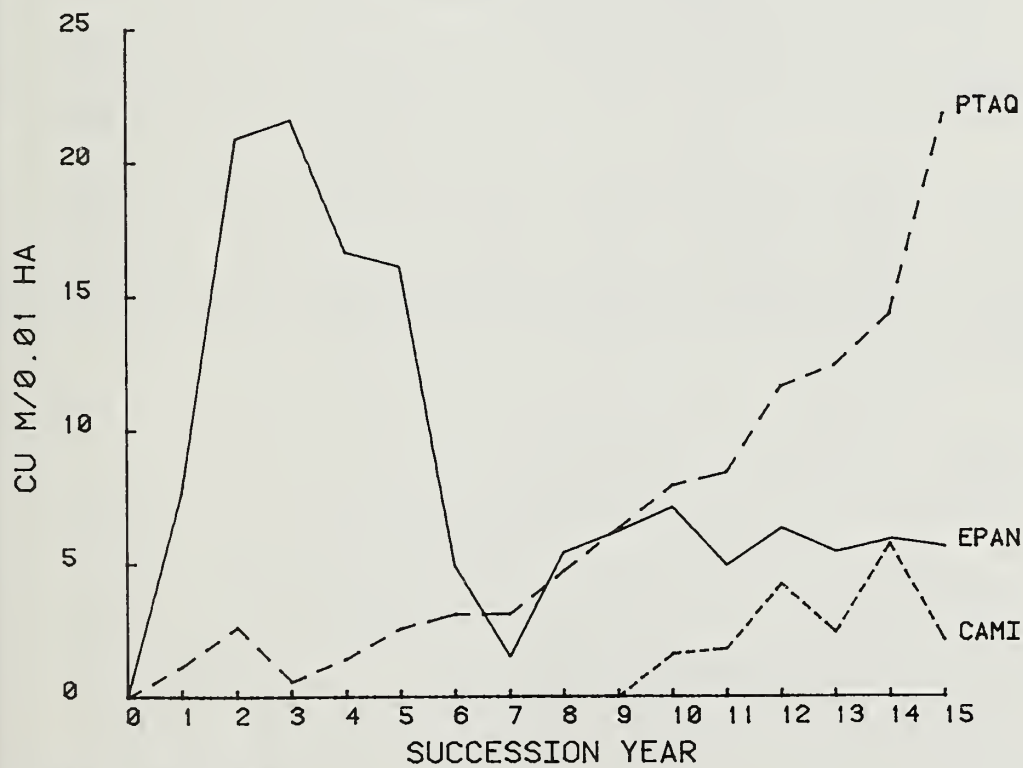


Figure 9-6.—Herb volume.

Site location and description: SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 8, T. 60 N., R. 2 W., BM; Elevation: 4,050 ft; Exposure: South (Az. 160°);  
Slope: 30%

Forest cover type and tree size class: Western larch immature poletimber, 40 to 70% canopy coverage

Reconstructed prefire forest stand:

Tree component: Conifer density 22.8/0.01 ha; Average d.b.h.: 14.8 cm; Basal area: 4,993 cm<sup>2</sup>/0.01 ha

Shrub component: Species present: PAMY, RULE, SASC, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1700-1800 hrs); Succession year 1:1968;

Fire intensity: 3,150 to 11,300 Btu/sec/ft; Rate of spread: 1 to 2.5 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 10-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 10-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	1	--	1	4	3	2	7	9	15
Shrub	3	10	15	21	27	33	40	43	42	38	40	37	57	67	59
Herb	16	41	39	43	32	20	28	22	22	19	18	21	20	23	23
Total veg.	19	51	54	64	60	53	69	65	66	61	61	60	84	99	97

Table 10-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 10-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	0.3	--	1.1	5.7	5.8	4.3	15.8	23.4	44.4
Shrub	0.3	5.6	9.9	15.8	23.8	32.6	28.8	40.4	38.7	35.4	34.0	30.6	48.3	73.6	72.7
Herb	4.3	21.8	20.9	28.2	16.2	7.9	10.7	9.4	8.5	7.0	5.7	8.9	9.4	10.5	10.2
Total veg.	4.6	27.5	30.8	43.9	39.9	40.4	39.7	49.9	48.4	48.1	45.5	43.8	73.5	107.5	127.3

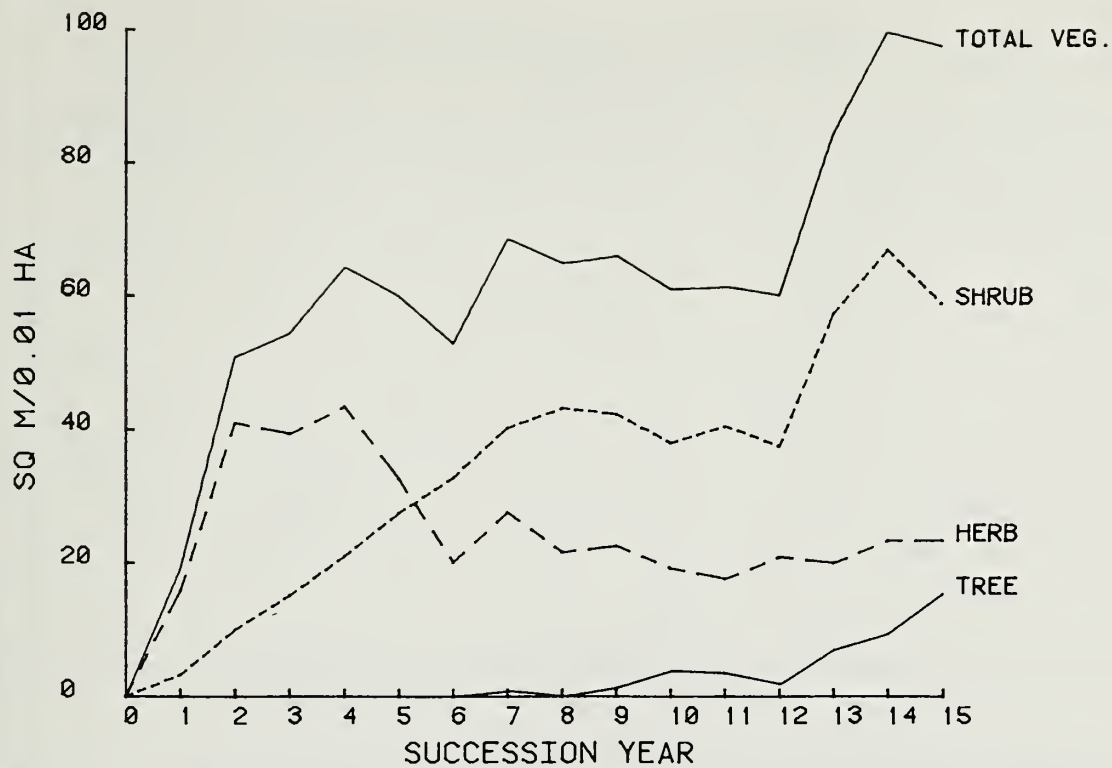


Figure 10-1.—Vegetative cover.

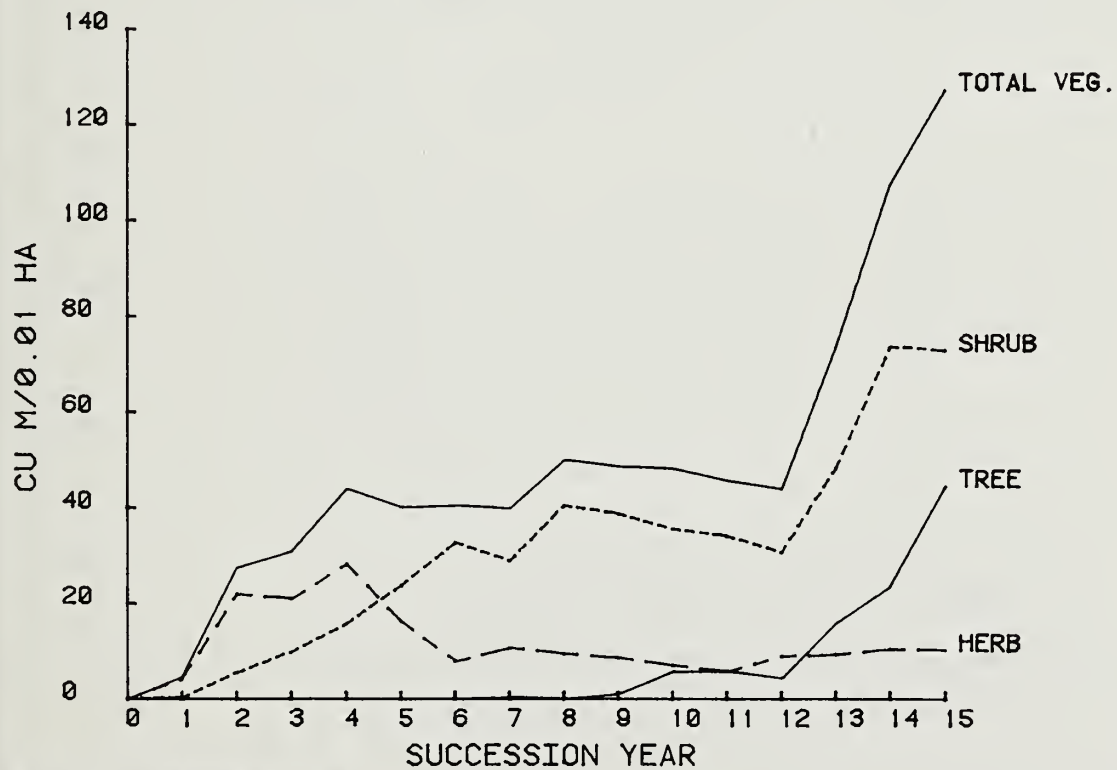


Figure 10-2.—Vegetative volume.



Table 10-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 10-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1
PSME	--	--	--	--	--	--	1	--	1	4	3	2	7	9	15
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	--	--	--	1	--	4
AMAL	--	--	--	--	--	--	--	--	--	--	--	1	2	3	--
PAMY	--	--	--	--	1	1	4	6	5	8	10	11	17	12	8
RULE	--	--	--	--	--	--	--	1	<1	--	1	<1	1	1	1
SASC	3	9	15	21	26	32	35	37	37	30	30	25	36	50	45
SARA	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--
VAME	--	--	--	--	--	--	1	--	--	--	--	--	--	1	1

Table 10-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 10-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AGAL	--	--	--	--	--	--	1	--	--	--	--	1	1	2	1
ANMA	--	--	--	--	--	2	7	8	10	2	2	2	2	2	2
APAN	--	--	--	--	--	--	--	--	--	--	--	--	3	1	--
CADE	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
CARO	1	3	5	4	5	2	2	2	2	2	2	2	2	2	2
CLUN	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
EPAN	15	36	33	38	27	13	8	8	9	11	10	12	7	10	8
ERAC	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
FEAR	--	--	--	--	--	--	3	--	--	--	--	--	--	--	2
GNMI	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	1	2	2	2	2	2
ILRI	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
PTAQ	--	--	--	--	--	--	1	--	1	--	1	2	1	1	2
SOCA	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	1	1	2
Misc.	--	2	1	1	--	2	2	4	1	3	1	1	--	2	2



Figure 10-3.—Tree and shrub cover.

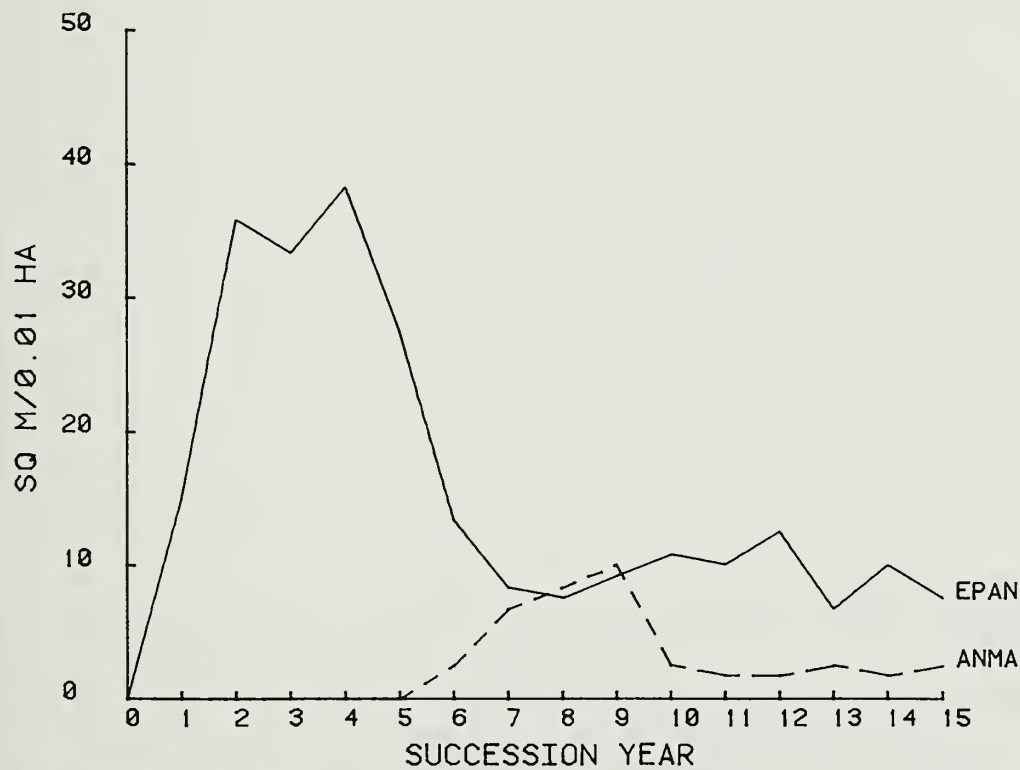


Figure 10-4.—Herb cover.

Table 10-5.--Volume development of tree and shrub components (m<sup>3</sup>/0.01 ha), fig. 10-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.4
PSME	--	--	--	--	--	--	0.3	--	1.1	5.7	5.8	4.3	15.8	23.4	44.0
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	--	--	--	1.1	--	8.1
AMAL	--	--	--	--	--	--	--	--	--	--	--	.3	.9	2.5	--
PAMY	--	--	--	--	0.2	0.3	1.1	2.8	2.3	4.4	5.8	7.1	10.7	8.6	5.6
RULE	--	--	--	--	--	--	--	.7	.1	--	.2	.2	.8	.5	.8
SASC	0.3	5.1	9.9	15.8	23.6	32.3	27.6	37.0	36.3	31.1	28.1	23.0	34.9	61.9	57.8
SARA	--	.6	--	--	--	--	--	--	--	--	--	--	--	--	--
VAME	--	--	--	--	--	--	.1	--	--	--	--	--	--	.1	.3

Table 10-6.--Volume development of herb component (m<sup>3</sup>/0.01 ha), fig. 10-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AGAL	--	--	--	--	--	--	0.5	--	--	--	--	0.6	0.7	1.6	0.9
ANMA	--	--	--	--	--	0.5	2.3	3.1	3.2	0.8	0.4	.6	.9	.7	1.5
APAN	--	--	--	--	--	--	--	--	--	--	--	--	1.2	.3	--
CADE	--	--	--	--	--	--	.4	--	--	--	--	--	--	--	--
CARO	<0.1	0.5	0.8	0.7	0.7	.3	.5	.1	.2	.2	.2	.2	.1	.1	.2
CLUN	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<.1
EPAN	4.2	20.9	19.9	27.3	15.5	6.8	4.2	5.2	4.8	5.5	4.7	7.0	4.9	6.3	5.4
ERAC	--	--	--	--	--	--	--	--	--	--	--	--	.4	--	--
FEAR	--	--	--	--	--	--	1.0	--	--	--	--	--	--	--	.3
GNMI	--	--	--	--	--	--	.4	--	--	--	--	--	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	<.1	.2	.2	.9	.6	.7
ILRI	--	--	--	--	--	--	.6	--	--	--	--	--	--	--	--
PTAQ	--	--	--	--	--	--	.3	--	.2	--	.2	.3	.2	.2	.5
SOCA	--	--	--	--	--	--	--	--	--	--	--	--	--	.1	--
VIOR	--	--	--	--	--	--	--	--	--	--	--	--	<.1	<.1	.1
Misc.	--	.4	.2	.2	--	.3	.5	1.0	.2	.4	.2	.1	--	.5	.7



Figure 10-5.—Tree and shrub volume.



Figure 10-6.—Herb volume.

SUNDANCE BURN: 1802-16 Study Area SD-14

Site location and description: NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 9, T. 60 N., R. 2 W., BM; Elevation: 3,400 ft; Exposure: West (Az. 270°); Slope: 40%

Forest cover type and tree size class: Douglas-fir immature poletimber, 70 through 100% crown coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 19.6/0.01 ha; Average d.b.h.: 15.9 cm; Basal area: 4,616 cm<sup>2</sup>/0.01 ha

Shrub component: Species present: AMAL, PAMY, ROGY, SASC

Disturbance treatment:

Wildfire: September 1, 1967 (1930 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: 1 to 6 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 11-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 11-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	--	--	2	1	2	3
Shrub	--	5	15	34	98	76	188	211	130	136	139	118	131	161	119
Herb	28	42	43	37	44	30	38	34	39	44	48	40	48	56	59
Total veg.	28	47	58	70	142	106	226	245	169	180	187	160	180	219	181

Table 11-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 11-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	--	--	4.2	2.7	5.4	8.7
Shrub	--	3.0	8.7	24.8	114.0	123.1	255.0	378.9	256.7	272.4	288.9	232.2	275.3	384.1	308.1
Herb	7.8	16.4	18.0	13.2	18.0	12.7	15.1	15.7	22.0	23.3	28.9	24.7	33.8	44.5	51.8
Total veg.	7.8	19.5	26.6	38.0	132.0	135.8	270.1	394.6	278.8	295.7	317.8	261.1	311.8	433.9	368.6

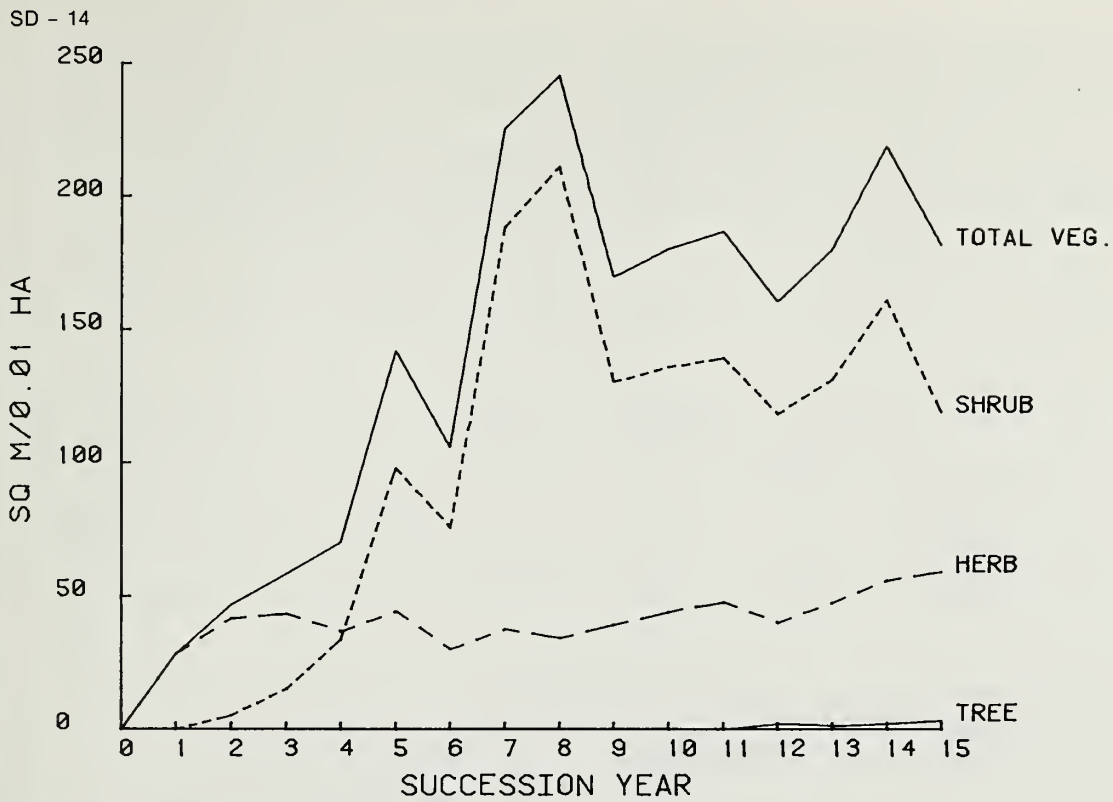


Figure 11-1.—Vegetative cover.

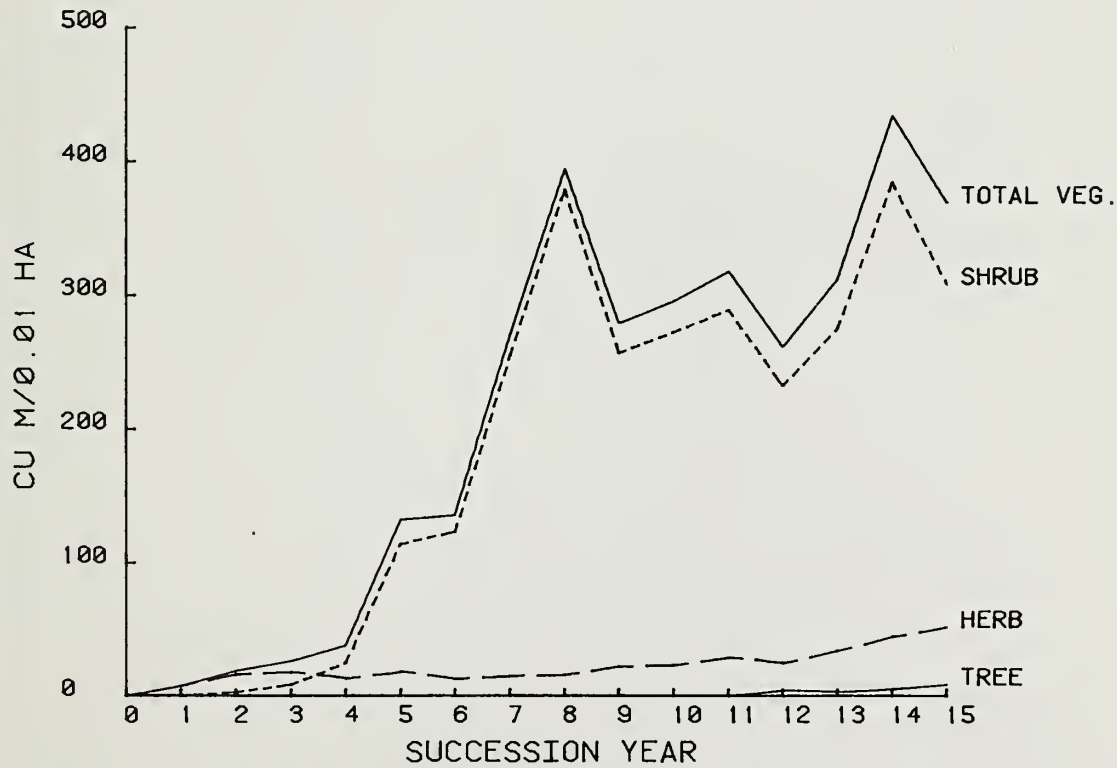


Figure 11-2.—Vegetative volume.



Table 11-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 11-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	--	--	--	<1	--	--	<1
PSME	--	--	--	--	--	--	--	--	--	--	--	2	1	2	3
<u>Shrub</u>															
CESA	--	2	9	25	78	60	163	183	103	96	94	76	79	96	56
PAMY	--	--	--	--	--	--	--	--	1	1	3	2	10	6	7
ROGY	--	--	1	1	<1	1	2	6	7	8	13	5	6	9	3
RUPA	--	--	--	--	--	--	--	2	--	1	1	<1	1	3	--
SASC	--	3	6	8	19	15	24	21	19	30	29	35	36	47	52

Table 11-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 11-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	1	2	2	1	--	1	--	1	1	1
CARO	2	3	4	4	2	3	2	1	2	3	3	3	2	1	--
CLUN	--	--	--	--	--	--	--	--	--	--	1	1	1	2	2
EPAN	24	30	32	24	20	13	14	14	16	8	9	8	10	13	10
FEAR	--	--	--	--	--	--	1	--	1	2	2	2	2	2	2
HIAL	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--
ILRI	--	--	--	--	--	--	--	--	--	1	--	--	3	1	1
PTAQ	1	7	5	7	18	9	18	16	18	28	31	25	28	35	42
Misc.	2	2	2	2	3	3	--	2	1	2	--	--	--	--	--

SD - 14

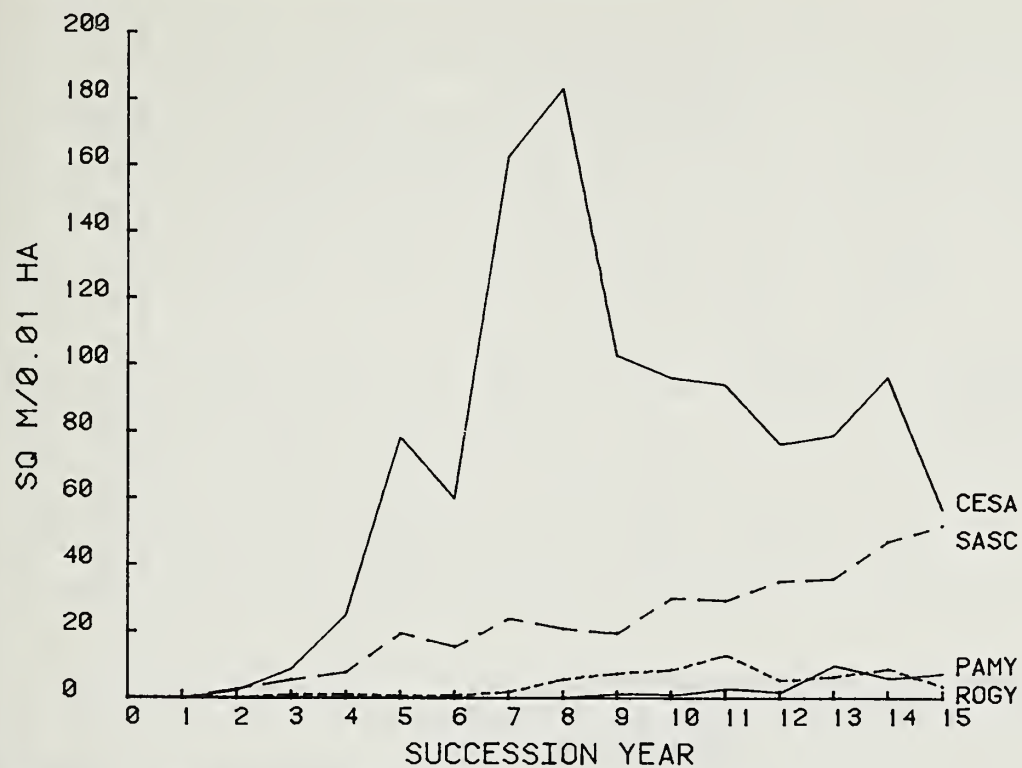


Figure 11-3.—Tree and shrub cover.

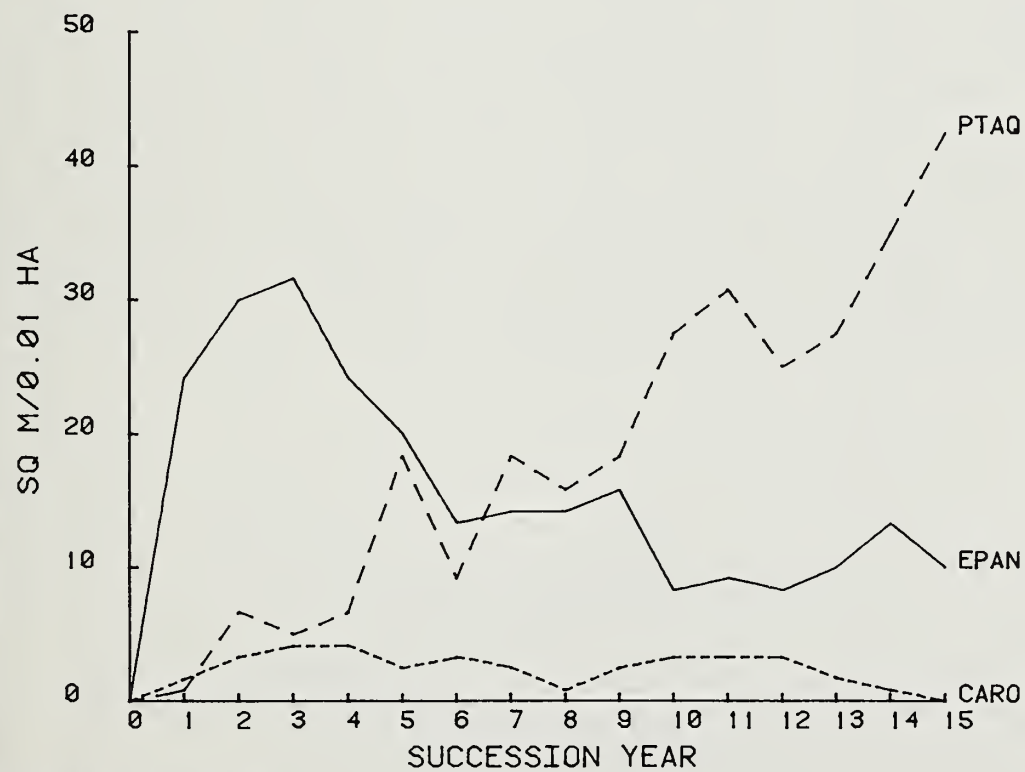


Figure 11-4.—Herb cover.

Table 11-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 11-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
POTRE	--	--	--	--	--	--	--	--	--	--	--	0.6	--	--	0.4
PSME	--	--	--	--	--	--	--	--	--	--	--	3.7	2.7	5.4	8.2
<u>Shrub</u>															
CESA	--	1.5	5.5	20.0	93.5	105.3	222.9	342.9	214.1	209.1	212.3	146.8	174.6	239.2	149.5
PAMY	--	--	--	--	--	--	--	--	.3	.1	1.0	.6	5.4	3.0	3.5
ROGY	--	--	.2	.1	.3	.5	.8	4.6	6.9	7.6	10.5	4.9	5.5	6.4	2.1
RUPA	--	--	--	--	--	--	--	1.0	--	.7	.5	.2	.4	2.6	--
SASC	--	1.6	2.9	4.7	20.2	17.2	31.3	30.3	35.5	54.9	64.5	79.7	89.4	132.8	153.0

Table 11-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 11-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	0.4	0.9	0.7	0.3	--	0.3	--	0.6	0.5	0.5
CARO	0.2	0.5	0.8	0.6	0.2	.5	.3	.1	.3	0.3	.3	0.4	.3	.1	--
CLUN	--	--	--	--	--	--	--	--	--	--	<.1	.1	<.1	.1	.1
EPAN	7.2	13.5	14.9	10.0	10.1	7.1	7.4	8.4	11.3	5.9	7.6	7.8	7.9	12.0	9.8
FEAR	--	--	--	--	--	--	.1	--	.2	.5	1.2	.7	1.2	1.8	.6
HIAL	--	--	--	--	--	--	--	--	--	--	--	--	<.1	.8	--
ILRI	--	--	--	--	--	--	--	--	--	.7	--	--	5.2	.9	1.5
PTAQ	.2	2.0	1.6	2.2	7.1	3.6	6.4	6.3	9.3	15.4	19.5	15.7	18.6	28.3	39.3
Misc.	.2	.4	.7	.4	.6	1.1	--	.3	.5	.4	--	--	--	--	--

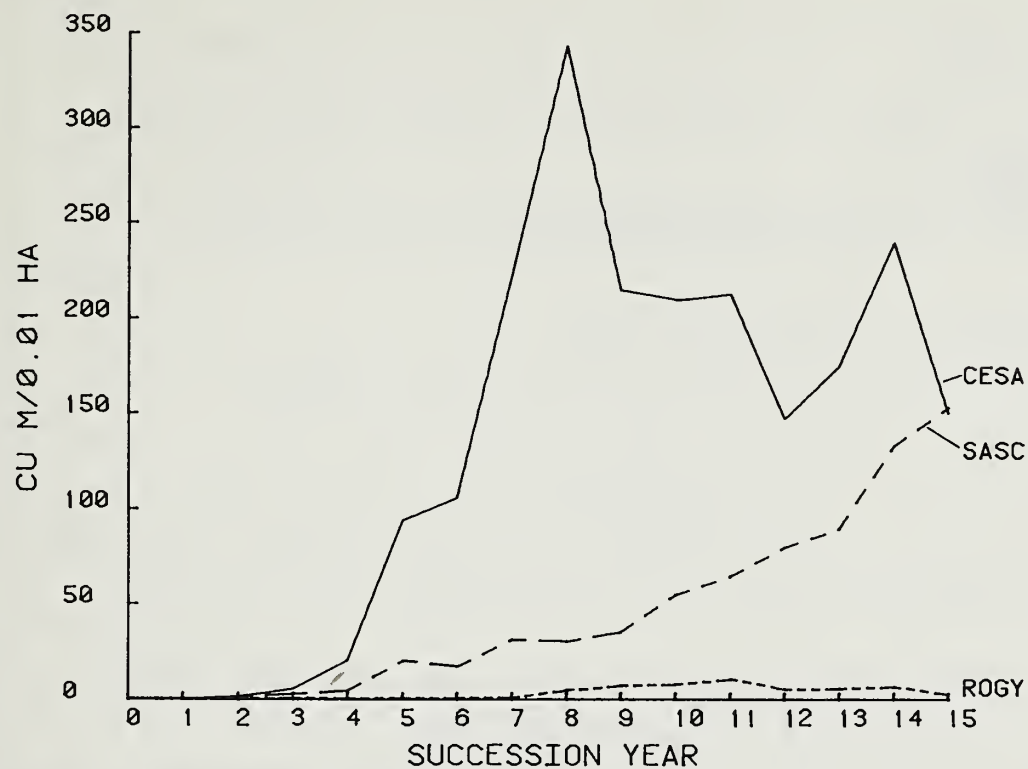


Figure 11-5.—Tree and shrub volume.

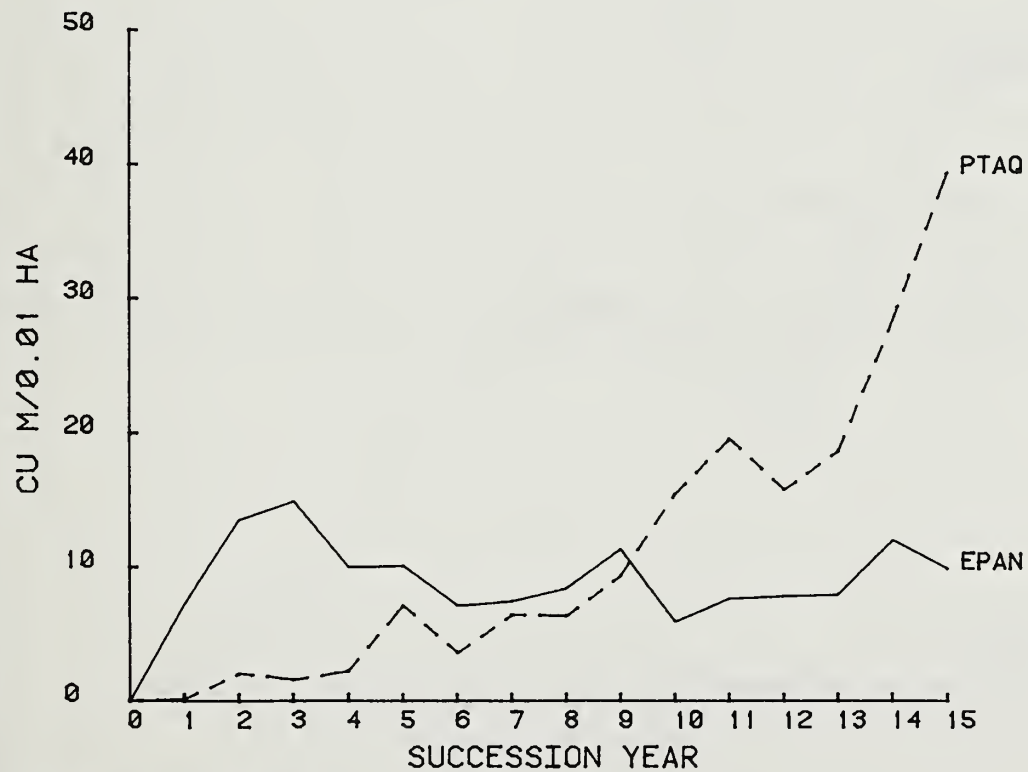


Figure 11-6.—Herb volume.

Site location and description: NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 9, T. 60 N., R. 2 W., BM; Elevation: 3,450 ft; Exposure: Southwest (Az. 225°); Slope: 30%

Forest cover type and tree size class: Douglas-fir immature poletimber, 70 through 100% crown coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 7.2/0.01 ha; Average d.b.h.: 12.6 cm; Basal area: 1,132 cm<sup>2</sup>/0.01 ha

Shrub component: ACGL 5%, AMAL 34%, ROGY 4%, SASC 41%, SYAL 16% (Shrub density: 17.6/0.01 ha);

Other species present: CESA, HODI, LOU, PAMY, PREM, SOSC, SPBE

Disturbance treatment:

Wildfire: September 1, 1967 (1930 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: 1 to 6 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 12-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 12-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	<1	1	2	2	2	2	1
Shrub	12	28	38	57	88	92	122	114	108	90	103	74	115	129	154
Herb	32	36	35	38	36	20	26	28	36	32	28	28	18	28	25
Total veg.	43	63	73	96	124	112	147	142	144	123	133	103	135	159	180

Table 12-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 12-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	0.1	0.4	1.5	1.8	1.8	3.1	1.3
Shrub	8.4	23.3	32.5	50.3	102.5	105.4	134.0	145.1	132.6	113.7	126.1	87.3	146.6	185.2	233.3
Herb	5.1	10.6	10.3	10.8	8.5	4.8	7.0	5.9	11.3	8.3	6.5	6.6	5.3	7.5	9.0
Total veg.	13.5	33.9	42.8	61.1	110.9	110.1	141.0	151.0	144.0	122.4	134.0	95.7	153.6	195.8	243.6

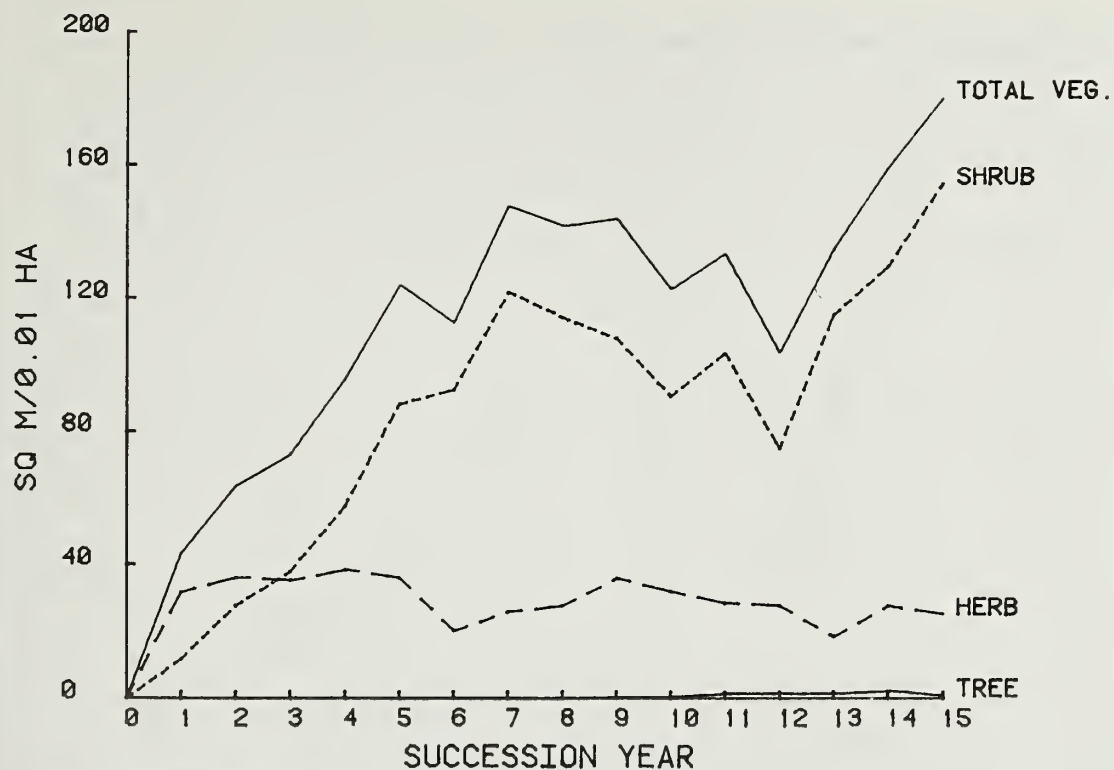


Figure 12-1.—Vegetative cover.

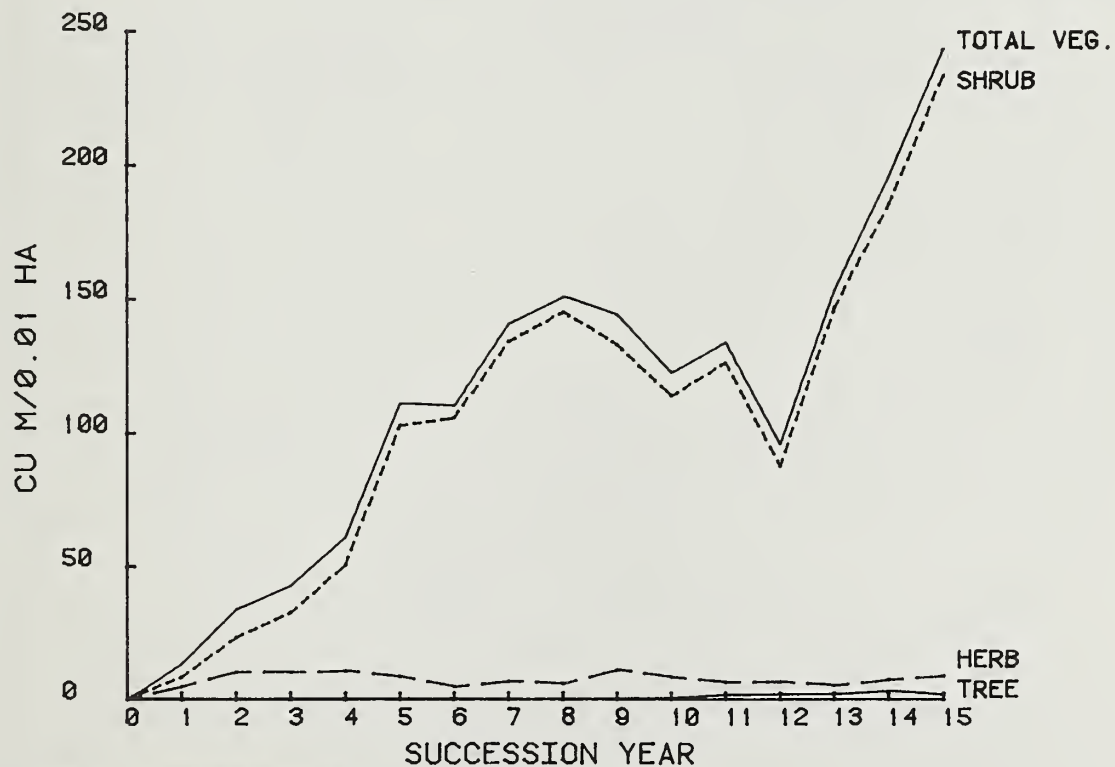


Figure 12-2.—Vegetative volume.



Table 12-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 12-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PSME	--	--	--	--	--	--	--	--	<1	1	2	2	2	2	1
<u>Shrub</u>															
ACGL	1	2	2	2	4	5	2	2	2	2	2	1	1	4	5
AMAL	5	11	17	17	41	36	39	38	37	19	32	11	29	30	34
GESA	--	4	5	11	17	21	36	33	29	30	31	21	28	34	49
CEVE	--	--	--	--	--	--	<1	3	2	3	3	1	2	3	10
PAMY	--	--	1	2	2	2	4	4	6	6	8	14	12	17	19
ROGY	--	--	2	3	1	1	2	2	1	2	2	1	2	2	1
SASC	3	5	4	12	12	15	21	16	18	16	14	13	24	25	22
SPBE	2	6	7	10	11	11	11	12	13	13	11	14	17	13	13
SYAL	--	--	<1	--	--	<1	2	2	--	1	1	--	1	1	<1

Table 12-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 12-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CARU	--	2	2	5	6	4	7	5	9	9	12	11	7	12	13
CAGE	--	1	--	--	--	--	--	1	2	2	4	3	3	5	4
CARO	2	7	3	5	9	4	8	8	8	2	5	3	3	2	3
EPAN	12	18	22	16	10	3	2	2	4	2	1	1	1	1	1
EPPA	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
GEBI	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ILRI	--	1	1	1	1	1	2	1	2	2	1	1	1	1	1
LUAR	--	--	2	5	5	5	4	6	8	8	5	8	2	2	2
Misc.	8	8	4	7	5	2	3	6	4	6	1	--	--	5	--

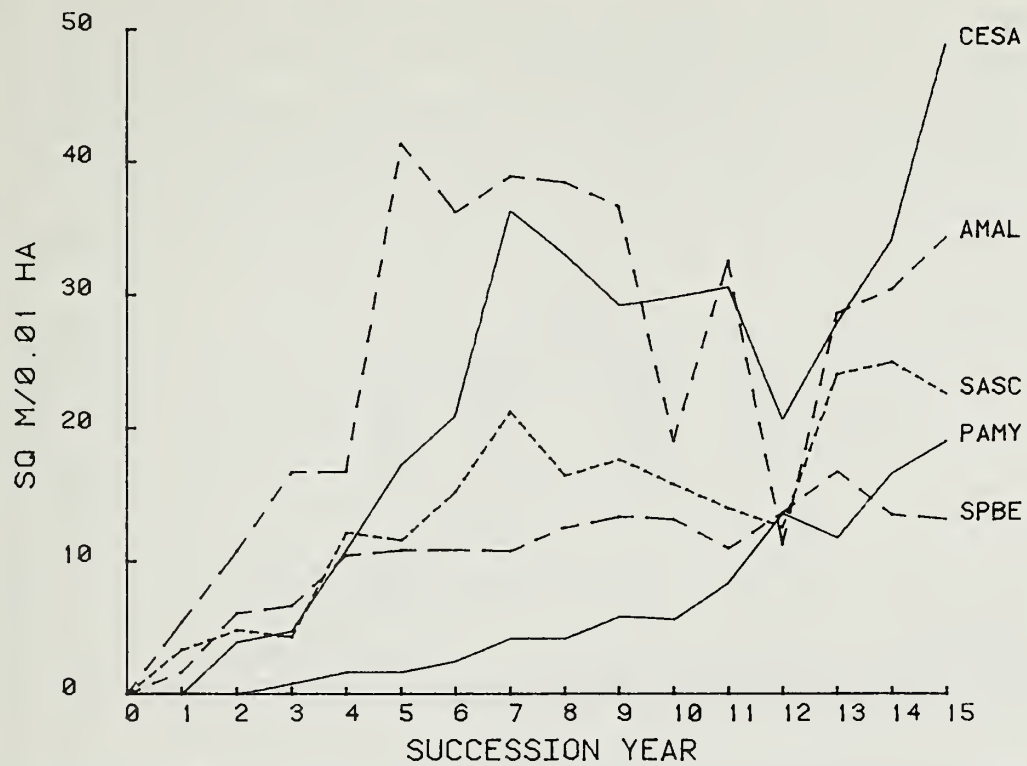


Figure 12-3.—Tree and shrub cover.

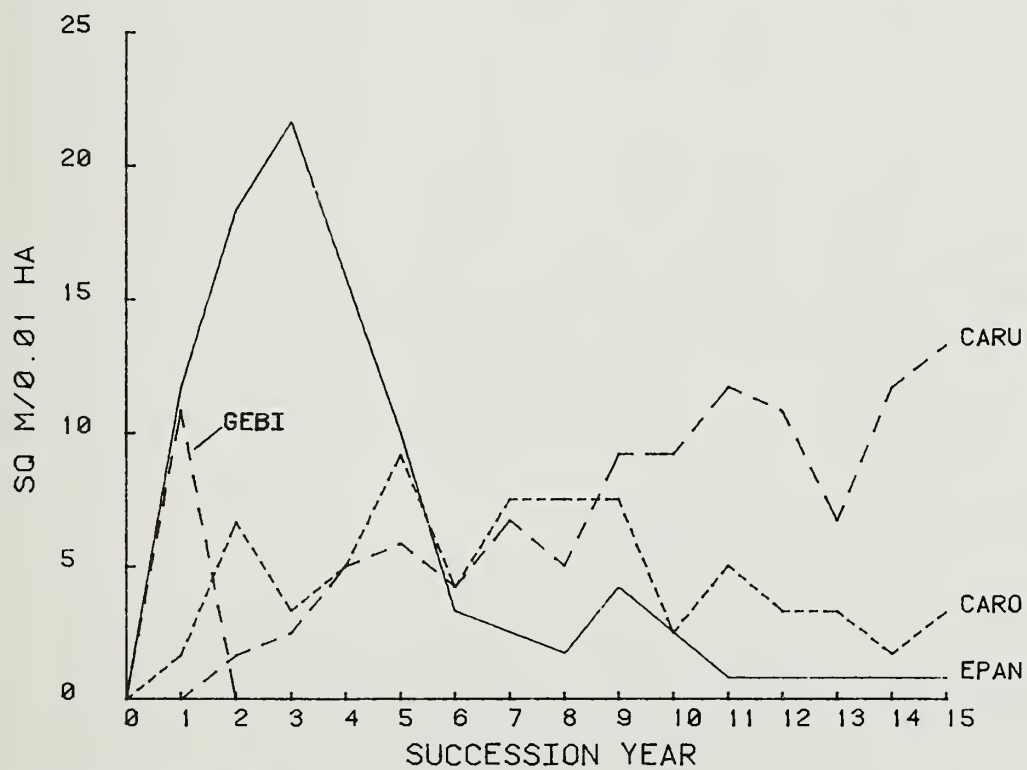


Figure 12-4.—Herb cover.

Table 12-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 12-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PSME	--	--	--	--	--	--	--	--	0.1	0.4	1.5	1.8	1.8	3.1	1.3
<u>Shrub</u>															
ACGL	0.7	1.4	2.2	2.0	4.6	5.5	2.2	3.8	3.8	2.8	3.4	2.8	1.7	8.9	14.1
AMAL	4.1	12.1	19.9	18.9	54.8	42.7	45.4	48.2	49.3	25.0	40.3	17.7	41.4	40.4	50.5
CESA	--	1.8	2.1	9.6	22.3	32.3	43.4	56.6	42.7	46.9	46.9	30.9	36.7	62.1	83.4
CEVE	--	--	--	--	--	--	.2	3.0	1.7	2.8	3.4	.6	1.9	3.3	11.3
PAMY	--	--	.1	.2	.2	.2	.9	.9	1.5	1.6	1.8	4.6	4.6	6.3	8.8
ROGY	--	--	.5	.8	.4	.6	1.0	.5	.8	1.6	.5	.3	.8	.4	.3
SASC	3.3	6.1	5.8	15.9	17.0	21.0	29.6	27.4	28.5	28.1	25.4	26.1	53.1	59.1	60.8
SPBE	.3	1.9	1.7	2.9	3.2	2.8	3.9	3.4	4.4	4.4	3.8	4.4	5.5	4.1	3.9
SYAL	--	--	.2	--	--	.2	.9	1.3	--	.5	.3	--	.8	.7	.2

Table 12-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 12-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CARU	--	0.5	0.9	1.2	1.3	1.2	2.3	1.1	2.5	2.4	2.8	2.8	1.8	4.1	6.1
CAGE	--	.1	--	--	--	--	--	.2	.4	.5	.6	.5	.7	1.1	.9
CARO	0.1	.6	.4	.5	.9	.4	1.3	.9	1.2	.3	.8	.4	.7	.2	.4
EPAN	3.1	8.0	7.7	6.2	4.0	1.4	1.1	.5	2.9	1.1	.4	.5	.4	.7	.4
EPPA	--	--	--	--	--	--	--	--	--	--	--	--	.4	--	--
GEBI	.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ILRI	--	.1	.2	.2	.3	.4	.7	.5	1.7	1.5	.7	.5	.4	.6	.4
LUAR	--	--	.5	1.4	1.2	1.0	1.2	1.6	2.1	1.5	1.1	1.9	.8	.7	.8
Misc.	1.0	1.2	.7	1.2	.7	.3	.5	1.1	.6	.9	.2	--	--	.2	--

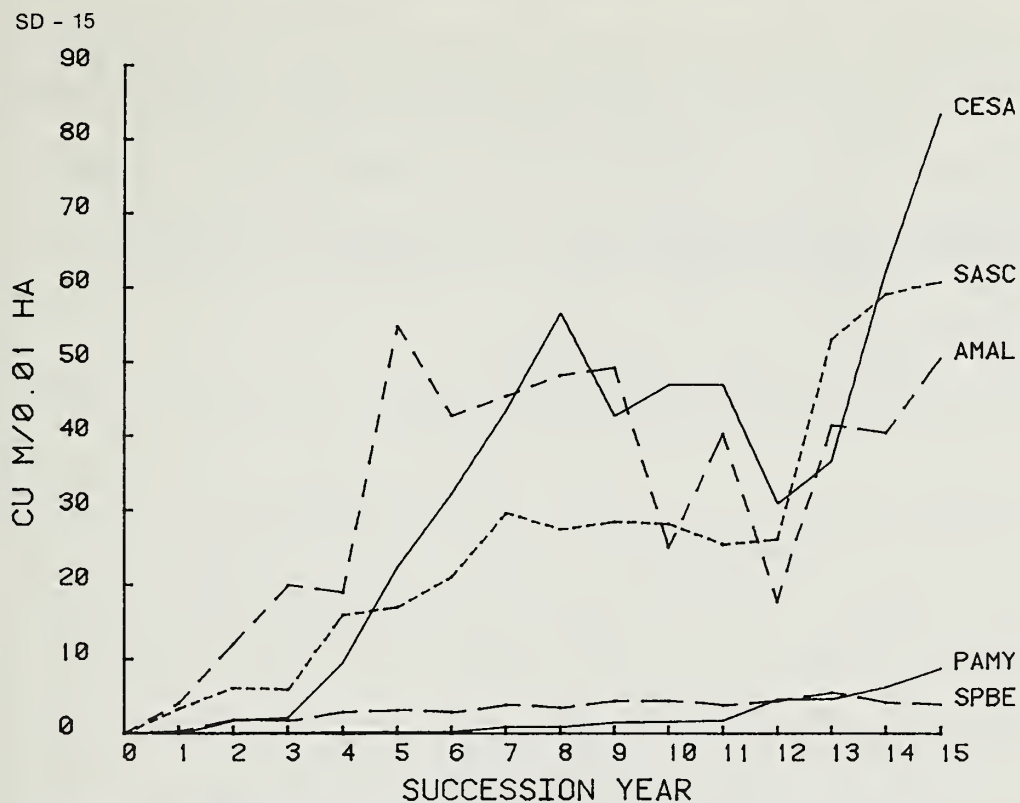


Figure 12-5.—Tree and shrub volume.

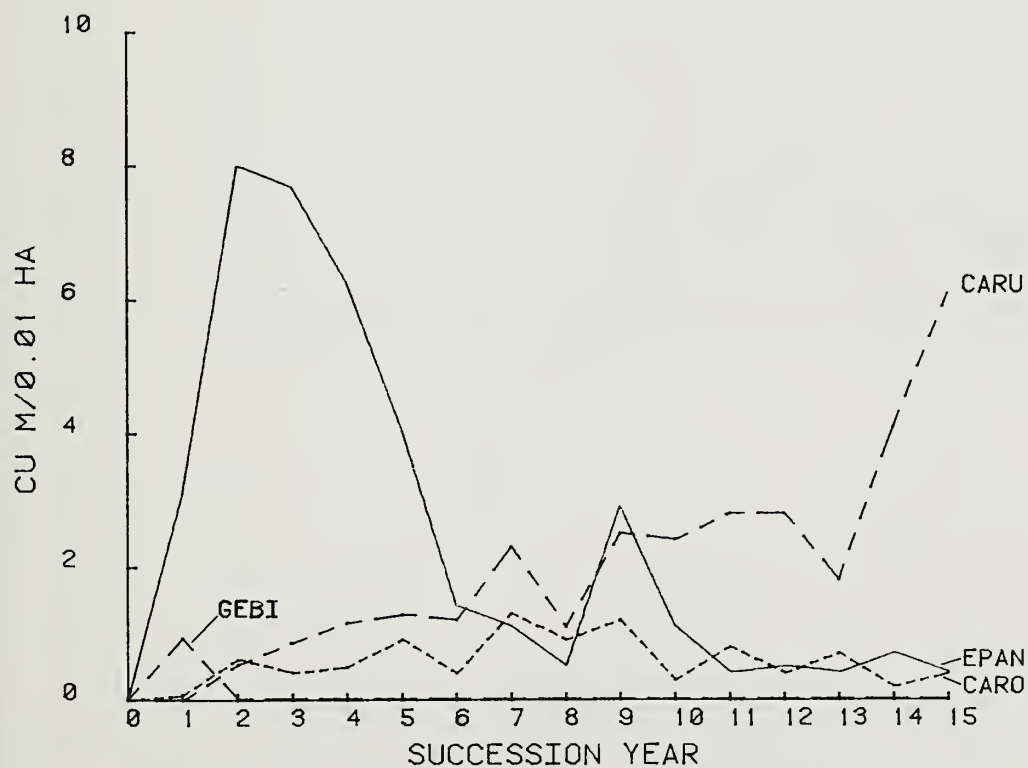


Figure 12-6.—Herb volume.

Site location and description: SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 9, T. 60 N., R. 2 W., BM; Elevation: 3,350 ft; Exposure: Southwest (Az. 240°); Slope: 30%

Forest cover type and tree size class: Douglas-fir immature poletimber, 70 through 100% crown coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 13.6/0.01 ha; Average d.b.h.: 15.0 cm; Basal area: 3,088 cm<sup>2</sup>/0.01 ha

Shrub component: ACGL 11%, CESA 17%, ROGY 11%, SASC 56%, SYAL 5% (Shrub density: 7.2/0.01 ha);

Other species present: CEVE, PAMY, RUPA, SPBE

Disturbance treatment:

Wildfire: September 1, 1967 (1930 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: 1 to 6 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 13-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 13-1

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	--	--	--	--	--	--	--	--	1	2	1	4
Shrub	7	32	27	62	90	120	134	196	135	166	128	145
Herb	46	50	47	45	35	24	39	31	32	24	35	23
Total veg.	53	82	75	107	125	145	173	227	168	192	164	172

Table 13-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 13-2

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	--	--	--	--	--	--	--	--	1.0	4.8	3.3	11.9
Shrub	7.8	30.4	21.1	55.0	98.5	167.0	157.5	329.5	242.3	292.6	219.2	240.7
Herb	9.6	22.4	19.7	17.7	12.0	9.8	17.3	11.5	15.4	9.9	21.3	12.9
Total veg.	17.4	52.8	40.8	72.7	110.5	176.8	174.7	341.0	258.7	307.3	243.8	265.5

SD - 16



Figure 13-1.—Vegetative cover.

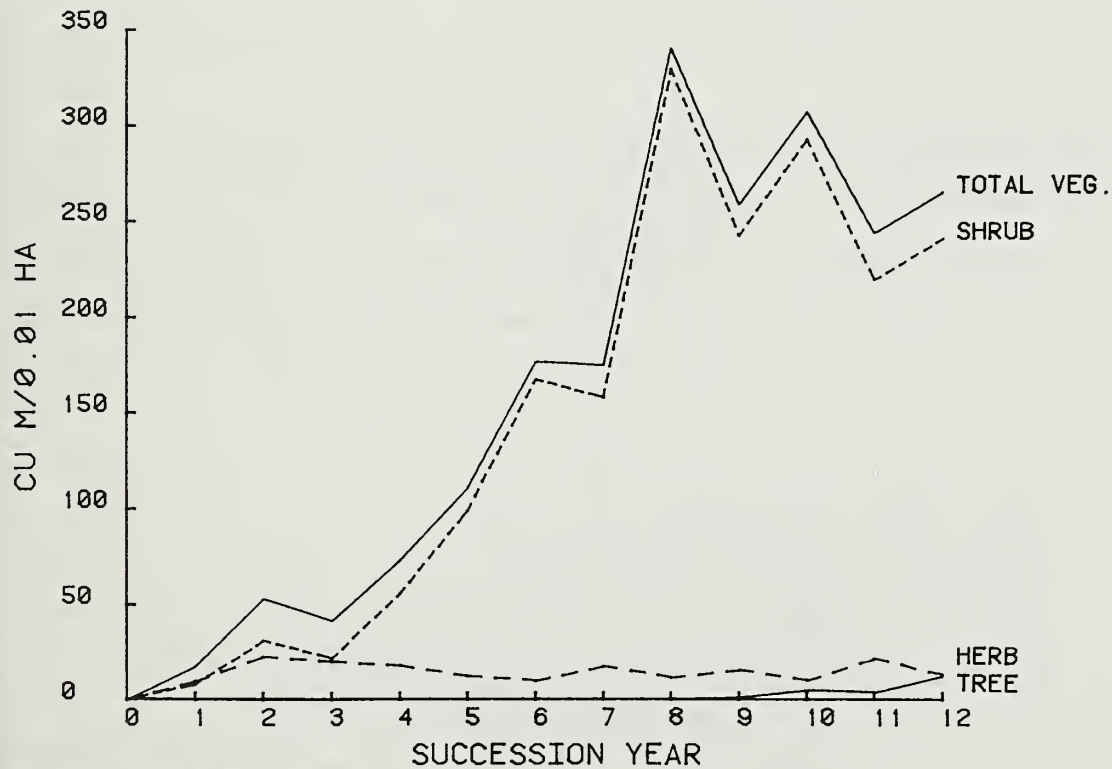


Figure 13-2.—Vegetative volume.



Table 13-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 13-3

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
PICO	--	--	--	--	--	--	--	--	--	<1	<1	<1
PSME	--	--	--	--	--	--	--	--	1	2	1	4
<u>Shrub</u>												
ACGL	1	2	2	3	5	1	8	7	5	2	1	1
CESA	--	5	12	29	47	82	74	121	77	101	66	75
CEVE	--	--	--	--	--	--	<1	1	2	3	2	--
LOUT	--	--	--	<1	--	--	--	--	--	--	--	--
PAMY	--	--	--	1	1	1	2	4	6	6	6	9
ROGY	--	3	2	2	3	3	6	9	5	8	6	6
RUPA	--	3	--	2	6	5	3	5	5	7	7	3
SASC	6	14	11	21	23	22	31	39	28	27	30	34
SPBE	--	4	1	3	4	5	8	9	7	11	9	13
SYAL	--	<1	--	--	<1	1	1	<1	1	1	1	3

Table 13-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 13-4

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
AGAL	1	3	2	2	8	4	11	6	8	7	9	7
ANMA	--	--	--	--	1	1	2	1	1	1	1	1
APAN	--	--	--	--	--	--	--	1	--	1	--	--
CARO	3	5	6	3	3	2	6	6	7	6	8	6
DAGL	1	1	2	3	2	3	6	2	3	2	4	3
EPAN	27	34	29	26	15	6	2	4	2	2	3	2
GEBI	6	1	--	--	--	--	--	--	--	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	--	1	--
ILRI	1	1	1	1	2	2	2	2	2	2	2	1
PHPR	--	--	--	--	--	--	1	--	--	--	--	--
PTAQ	2	1	2	5	1	2	7	6	7	2	6	3
Misc.	6	4	6	4	4	3	2	3	1	2	--	--

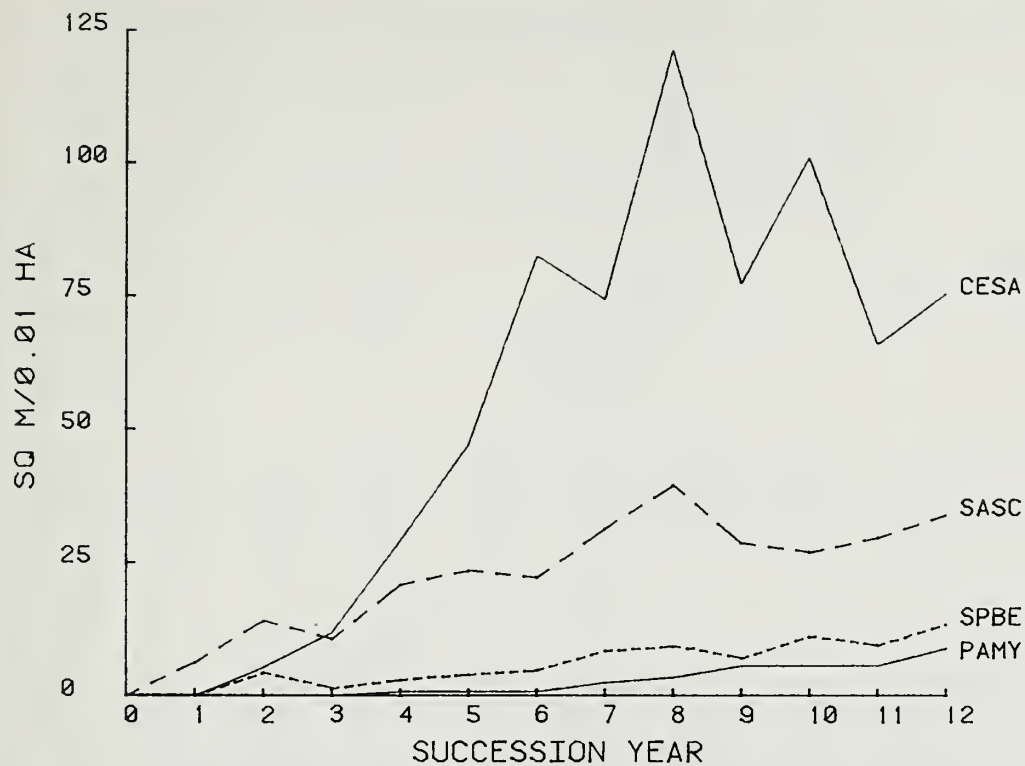


Figure 13-3.—Tree and shrub cover.

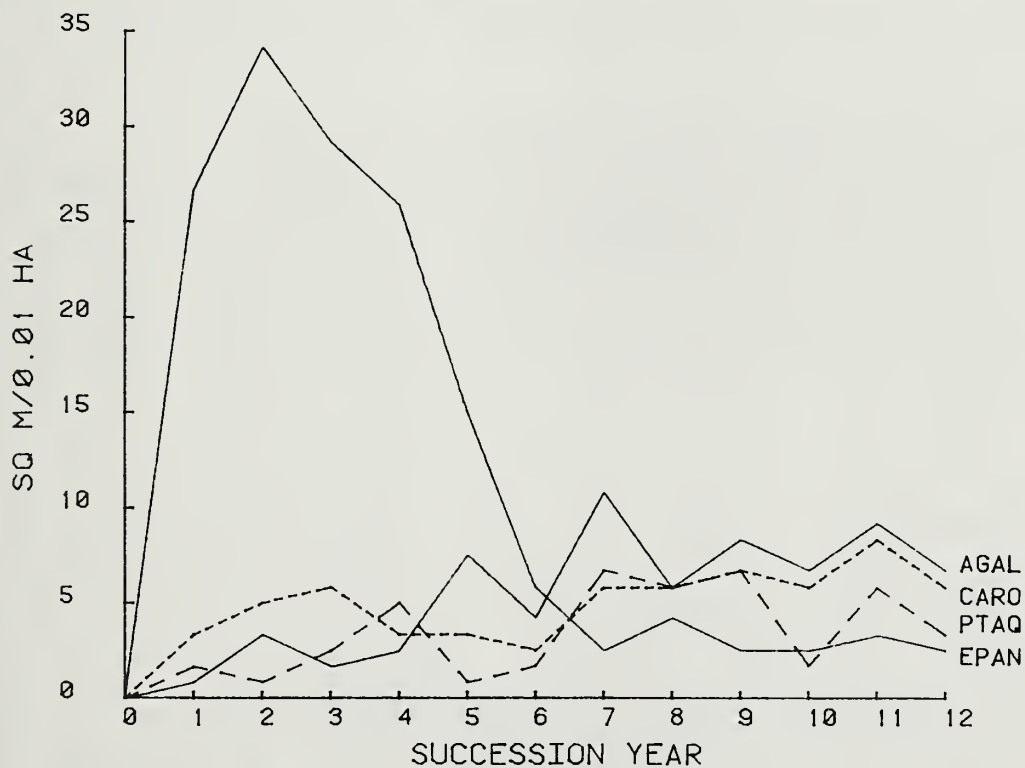


Figure 13-4.—Herb cover.

Table 13-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 13-5

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
PICO	--	--	--	--	--	--	--	--	--	0.4	0.3	0.4
PSME	--	--	--	--	--	--	--	--	1.0	4.4	3.0	11.5
<u>Shrub</u>												
ACGL	0.3	1.8	1.2	3.4	6.3	2.3	6.2	13.3	11.3	3.4	3.6	4.1
CESA	--	2.8	7.4	23.2	53.9	122.8	93.7	222.7	159.0	211.0	134.2	142.0
CEVE	--	--	--	--	--	--	.2	1.3	2.7	5.9	3.3	--
LOUT	--	--	--	.2	--	--	--	--	--	--	--	--
PAMY	--	--	--	.1	.2	.2	.7	1.4	2.1	2.3	2.3	4.2
ROGY	--	1.3	1.0	1.7	2.0	1.9	3.8	5.6	2.5	6.1	4.6	4.6
RUPA	--	1.2	--	.4	2.2	1.8	1.6	2.8	2.4	3.4	2.9	1.2
SASC	7.5	21.4	11.1	24.8	32.4	36.1	47.4	79.1	59.4	54.8	63.2	76.6
SPBE	--	1.9	.4	1.2	1.4	1.6	3.5	3.0	2.5	5.0	4.3	5.8
SYAL	--	<.1	--	--	.1	.3	.4	.3	.4	.7	.8	2.2

Table 13-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 13-6

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
AGAL	0.1	2.6	0.5	0.9	2.9	2.3	7.0	2.0	4.9	2.9	6.9	5.0
ANMA	--	--	--	--	.2	.3	.7	.4	.7	.7	.6	.5
APAN	--	--	--	--	--	--	--	.3	--	.3	--	--
CARO	.3	.6	.7	.4	.3	.3	.9	.8	.9	.8	1.4	.6
DAGL	.1	.1	.4	.8	.4	.9	2.1	.9	2.0	1.3	2.8	1.5
EPAN	7.5	16.7	15.4	12.5	6.2	3.3	1.1	2.6	1.5	1.8	2.2	1.9
GEB1	.4	.2	--	--	--	--	--	--	--	--	--	--
HIAL	--	--	--	--	--	--	--	--	--	--	<.1	--
ILRI	.1	.3	.3	.3	.7	1.5	1.6	1.3	1.9	1.0	2.5	1.0
PHPR	--	--	--	--	--	--	.6	--	--	--	--	--
PTAQ	.3	.4	.9	2.0	.2	.5	2.5	2.7	3.4	.8	4.9	2.4
Misc.	.8	1.4	1.4	.8	1.1	.7	.8	.6	.2	.4	--	--

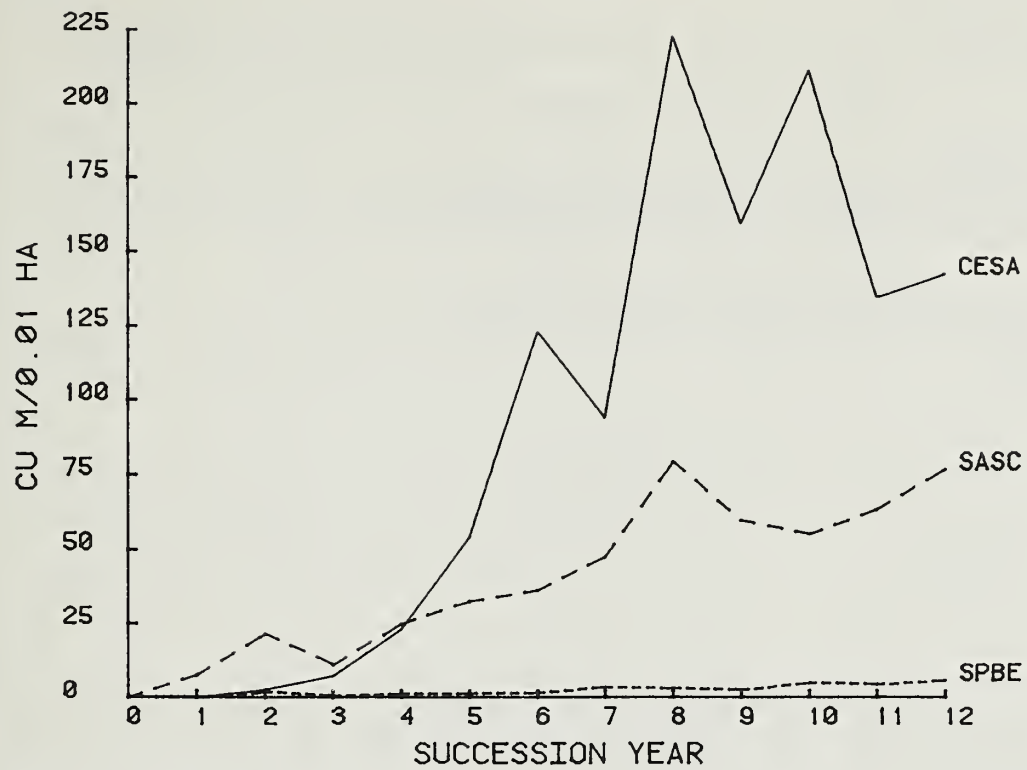


Figure 13-5.—Tree and shrub volume.

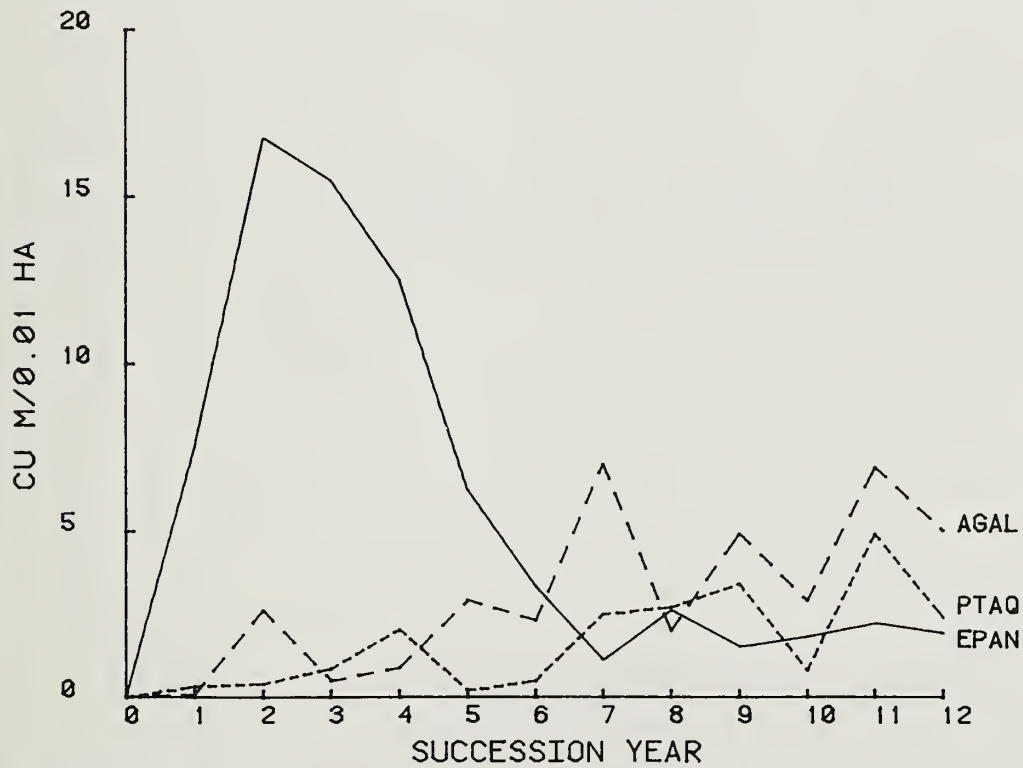


Figure 13-6.—Herb volume.

Site location and description: SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 9, T. 60 N., R. 2 W., BM; Elevation: 3,650 ft; Exposure: Southwest (Az. 240°); Slope: 30%

Forest cover type and tree size class: Western larch immature poletimber, 10 to 40% crown coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 1.6/0.01 ha; Average d.b.h.: 3.5 cm; Basal area: 18 cm<sup>2</sup>/0.01 ha

Shrub component: ACGL 2%, AMAL 15%, CESA 21%, HODI 14%, PREM 3%, ROGY 1%, SASC 39%, SYAL 5% (Shrub density: 50.0/0.01 ha); Other species present: CEVE, LOU, PAMY, SPBE, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1930-2000 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: 1 to 6 mi/h;

Fire severity: R-N index: 5-M to 5-D; Shrub overstory crown: Consumed, reduced to charred stubs at root crown;

Litter-duff: Consumed

Table 14-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 14-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Shrub	50	60	115	104	140	144	138	170	131	143	157	139	155	193	183
Herb	41	62	52	49	47	32	48	48	50	46	51	53	49	47	44
Total veg.	91	122	168	153	187	177	186	219	181	189	208	192	204	240	227

Table 14-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 14-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Shrub	71.4	88.8	235.5	182.1	230.3	302.3	241.9	340.9	218.7	255.1	269.0	244.3	268.5	334.3	351.2
Herb	6.5	18.0	12.4	14.7	10.5	8.6	15.6	14.9	14.4	13.4	15.9	17.4	17.9	15.9	17.2
Total veg.	77.9	106.8	247.9	196.7	240.8	310.9	257.5	355.8	233.1	268.5	284.9	261.7	286.4	350.2	368.4



Figure 14-1.—Vegetative cover.

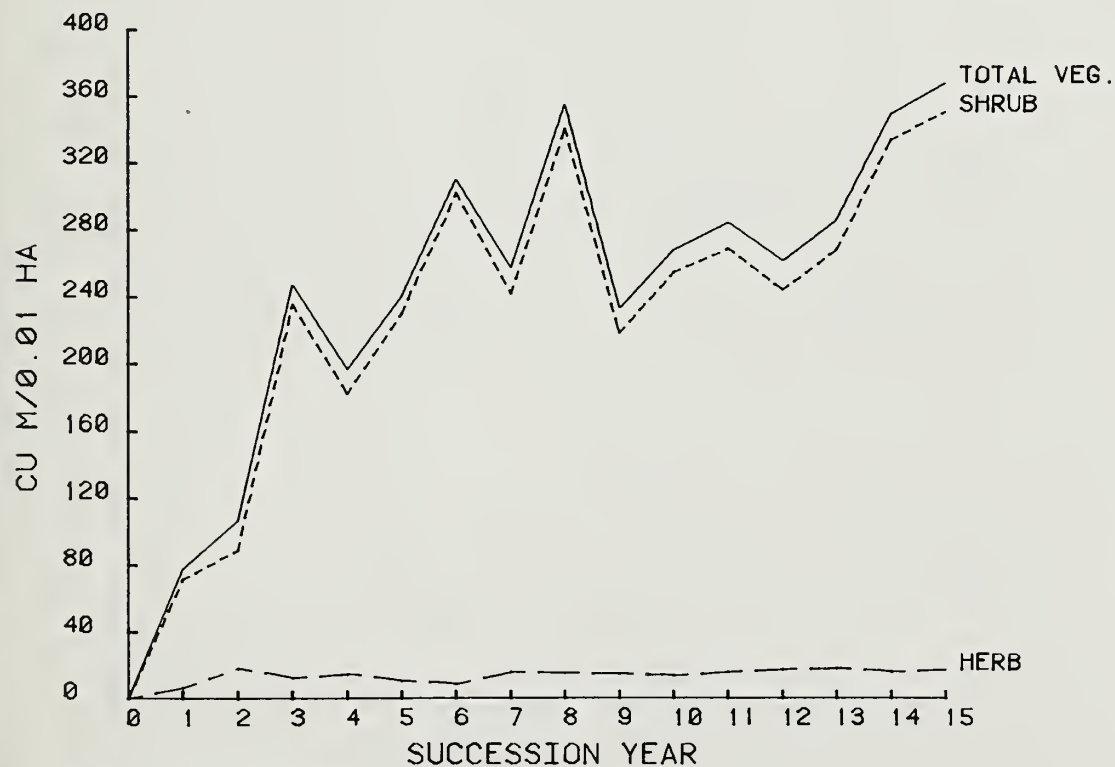


Figure 14-2.—Vegetative volume.



Table 14-3.--Cover development of shrub component (m<sup>2</sup>/0.01 ha or %), fig. 14-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ACGL	1	1	2	2	3	3	1	2	3	3	4	4	3	4	3
AMAL	1	2	4	8	9	11	13	16	9	6	6	12	9	11	10
CESA	9	16	13	20	50	22	20	26	28	48	47	30	46	85	67
CEVE	--	--	--	--	--	--	--	1	1	--	--	--	--	--	--
HODI	2	1	2	6	4	8	10	11	7	9	13	3	9	6	7
PAMY	--	5	4	8	9	11	20	16	18	15	24	27	28	25	26
PREM	--	--	<1	--	1	1	2	1	1	<1	<1	1	--	1	<1
ROGY	1	2	6	7	9	9	7	8	9	8	11	8	8	9	7
SASC	34	30	75	47	46	72	60	75	46	48	46	50	49	49	54
SPBE	1	2	3	3	3	3	2	2	4	3	2	1	2	2	2
SYAL	1	1	6	4	6	5	4	11	5	3	4	3	<1	3	5
VAME	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--

Table 14-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 14-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ACMI	--	--	--	--	--	--	--	--	--	1	1	1	--	--	--
CARU	8	22	21	17	22	18	33	25	25	23	26	26	29	30	28
CAGE	--	--	--	--	--	--	--	--	--	--	1	1	1	1	--
CARO	2	6	2	5	7	4	1	--	4	1	2	2	1	1	2
CRAF	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EPAN	1	1	2	2	2	1	2	3	2	2	1	1	1	--	1
FRVE	--	--	--	--	--	--	--	--	1	--	--	1	2	2	2
LICO	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
LUAR	18	25	19	19	8	4	10	9	13	12	13	19	13	11	8
THOC	--	1	2	2	2	1	1	5	3	5	7	3	2	2	5
Misc.	9	8	7	4	6	4	1	6	1	2	--	--	--	--	--

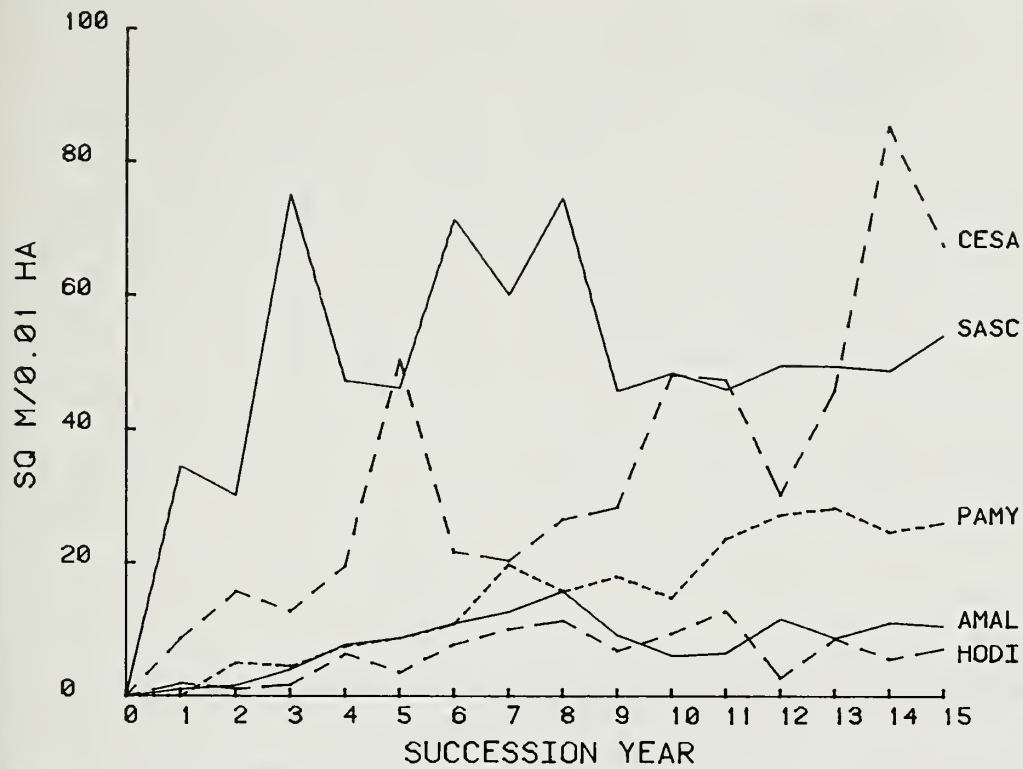


Figure 14-3.—Shrub cover.



Figure 14-4.—Herb cover.

Table 14-5.--Volume development of shrub component (m<sup>3</sup>/0.01 ha), fig. 14-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ACGL	0.8	1.9	2.9	2.9	4.7	5.8	1.0	3.4	4.5	4.1	5.5	6.4	4.6	5.5	5.5
AMAL	.5	1.2	3.0	8.1	9.2	11.5	14.2	19.2	9.3	6.8	8.4	16.8	12.1	15.5	16.8
CESA	3.6	12.1	8.3	15.0	49.0	25.1	13.7	18.8	23.0	59.0	60.8	26.3	44.7	108.8	94.5
CEVE	--	--	--	--	--	--	--	.6	.5	--	--	--	--	--	--
HODI	1.5	1.5	2.8	9.8	6.0	13.3	11.0	19.3	11.3	14.5	19.2	4.8	11.7	10.1	14.1
PAMY	--	.8	.9	1.7	2.4	3.6	7.8	6.5	7.6	6.4	10.0	12.3	14.4	12.3	13.2
PREM	--	--	<.1	--	.7	1.2	3.1	1.5	1.1	.4	.6	2.0	--	1.0	.1
ROGY	.1	.5	2.1	2.8	3.8	3.7	3.5	4.6	4.0	4.3	6.3	4.8	4.8	5.3	4.1
SASC	64.1	69.1	211.7	139.1	150.7	234.4	184.3	260.2	154.7	157.8	156.4	169.4	175.3	174.2	200.6
SPBE	.2	.8	.6	.8	.8	1.2	.5	.7	1.0	.7	.5	.3	.7	.5	.6
SYAL	.6	.8	3.2	1.4	3.0	2.6	2.7	6.1	1.8	1.3	1.3	1.3	.2	1.2	1.8
VAME	--	--	--	.4	--	--	--	--	--	--	--	--	<.1	--	--

Table 14-6.--Volume development of herb component (m<sup>3</sup>/0.01 ha), fig. 14-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ACMI	--	--	--	--	--	--	--	--	--	0.2	0.1	0.1	--	--	--
CARU	2.0	7.0	5.2	5.0	5.9	5.3	10.5	7.3	7.1	7.0	9.1	8.9	10.7	11.0	11.8
CAGE	--	--	--	--	--	--	--	--	--	--	.3	.2	.2	.2	--
CARO	.1	.5	.2	.6	.6	.4	.1	--	.5	<.1	.3	.2	.1	.1	.3
CRAF	.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EPAN	.3	.2	2.1	2.2	.8	.7	1.2	1.8	1.0	.8	.6	.8	.9	--	.7
FRVE	--	--	--	--	--	--	--	--	<.1	--	--	.1	.1	.2	.3
LICO	--	--	--	--	--	--	--	--	.4	--	--	--	--	--	--
LUAR	2.5	8.7	3.2	5.5	1.2	.8	3.3	2.5	3.8	3.2	3.2	5.8	4.3	3.6	1.7
THOC	--	.2	.4	.7	1.0	.4	.4	2.1	1.3	1.9	2.3	1.3	1.6	.8	2.5
Misc.	1.2	1.4	1.3	.6	1.0	.9	.1	1.3	.2	.3	--	--	--	--	--

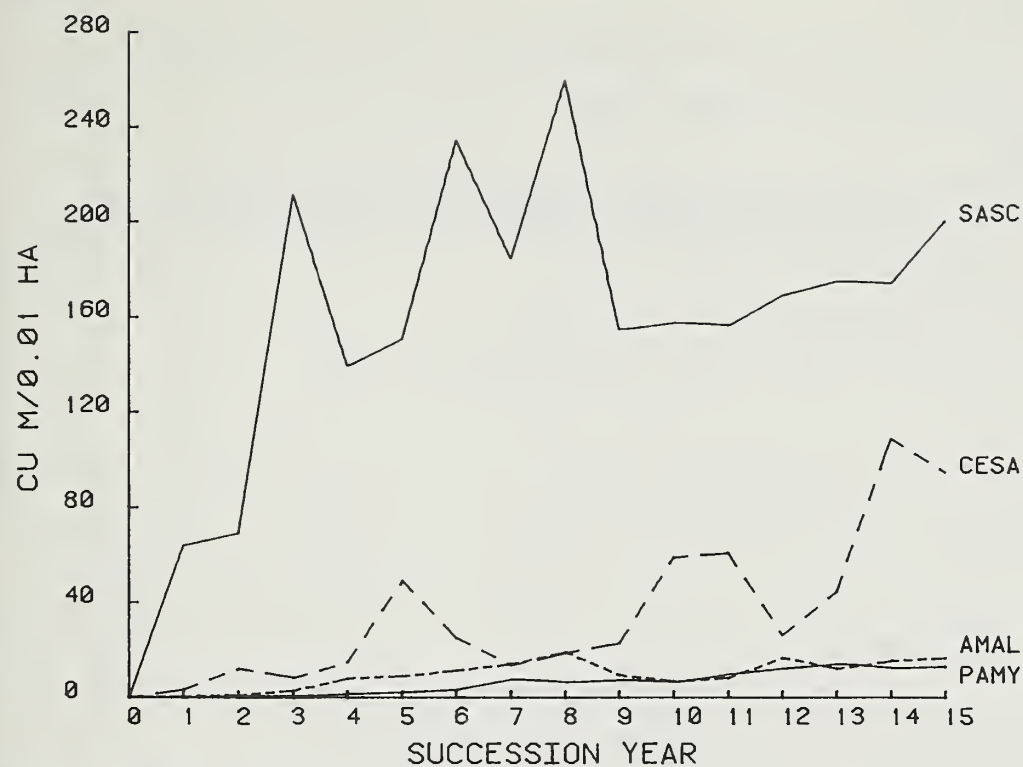


Figure 14-5.—Shrub volume.

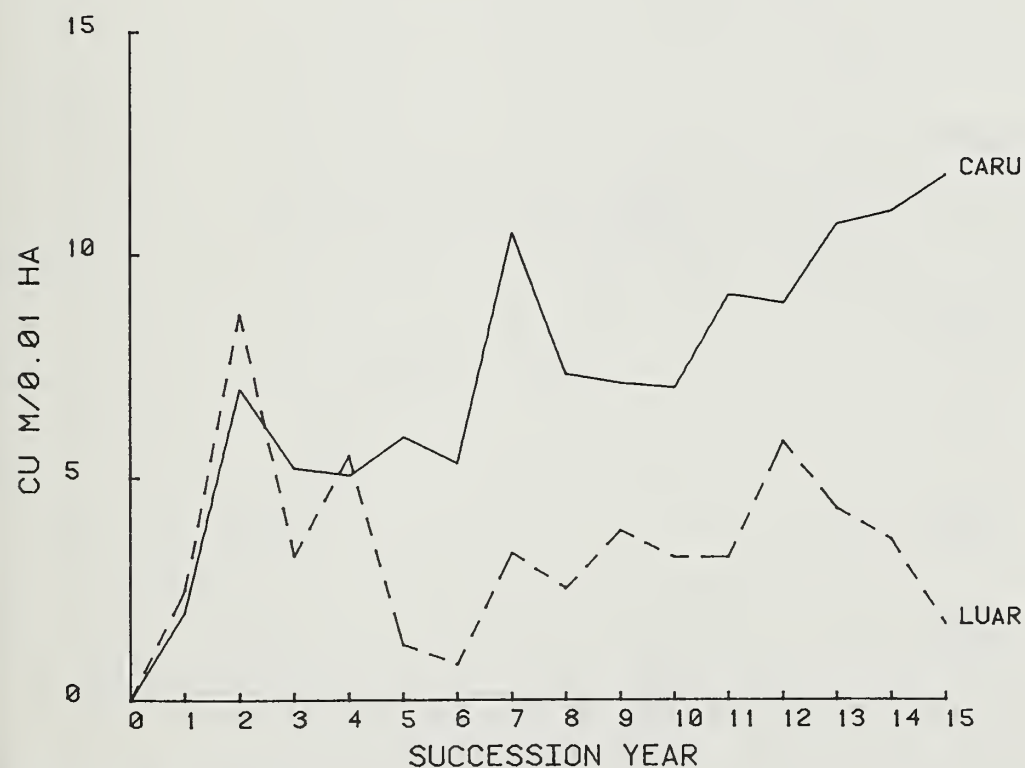


Figure 14-6.—Herb volume.

Site location and description: SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 9, T. 60 N., R. 2 W., BM; Elevation: 3,550 ft; Exposure: Southwest (Az. 245°); Slope: 35%

Forest cover type and tree size class: Western larch immature poletimber, 10 to 40% crown cover

Reconstructed prefire forest stand:

Tree component: Conifer density 10.8/0.01 ha, paper birch density 4.4/0.01 ha; Average diameter:

Conifer 10.9 cm, paper birch 11.8 cm; Basal area: Conifer 1,391 cm<sup>2</sup>/0.01 ha, Paper birch 901 cm<sup>2</sup>/0.01 ha

Shrub component: AMAL 20%, CESA 8%, HODI 6%, PREM 1%, ROGY 11%, SASC 52%, SYAL 2% (Shrub density: 40.0/0.01 ha);

Other species present: ACGL, CEVE, LOU, PAMY, RUPA, SPBE, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1930-2000 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: 1 to 6 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 15-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 15-1

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	--	--	--	--	--	--	--	<1	15	17	19	18
Shrub	58	75	87	137	138	119	127	174	148	130	157	138
Herb	25	41	46	37	42	38	47	48	50	45	48	43
Total veg.	83	116	133	175	181	157	174	221	212	191	225	199

Table 15-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 15-2

Life form component	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
Tree	--	--	--	--	--	--	--	0.1	67.2	77.4	96.2	90.4
Shrub	75.0	78.4	93.3	181.6	195.4	212.9	174.6	296.7	250.0	227.7	273.1	210.7
Herb	8.6	12.8	13.9	13.3	16.8	14.7	16.8	17.0	19.4	20.8	22.5	21.2
Total veg.	83.6	91.2	107.2	194.9	212.2	227.6	191.4	313.7	336.6	325.8	391.8	322.3

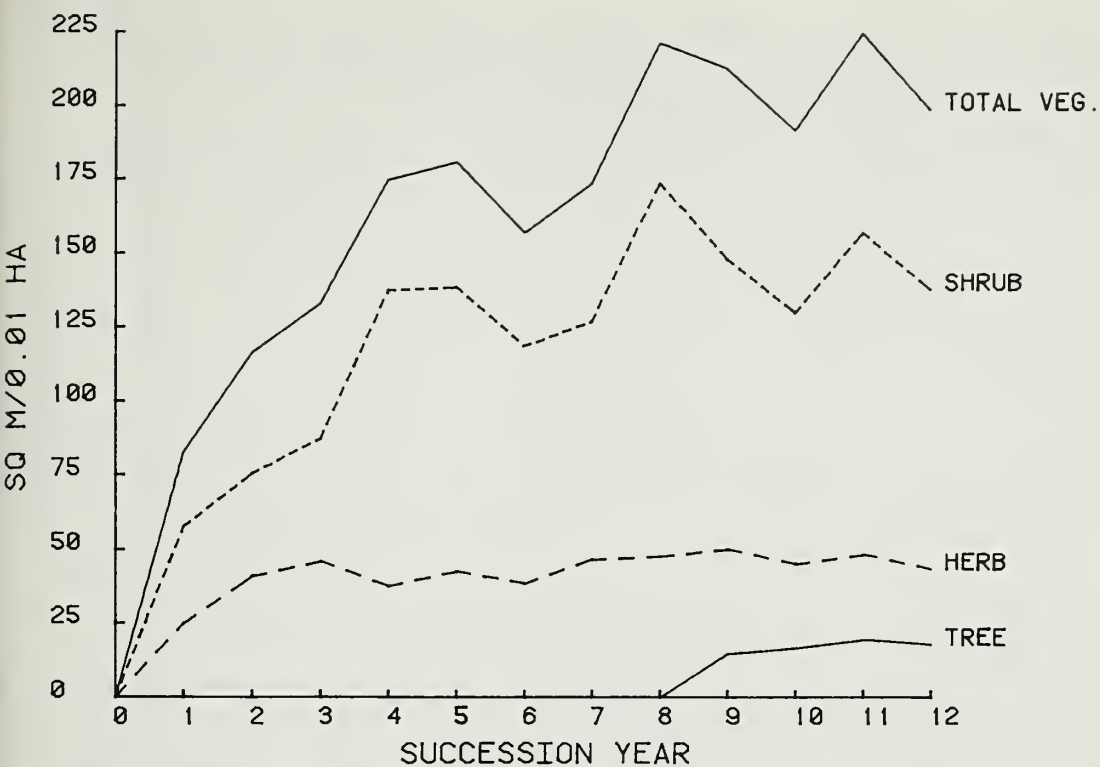


Figure 15-1.—Vegetative cover.

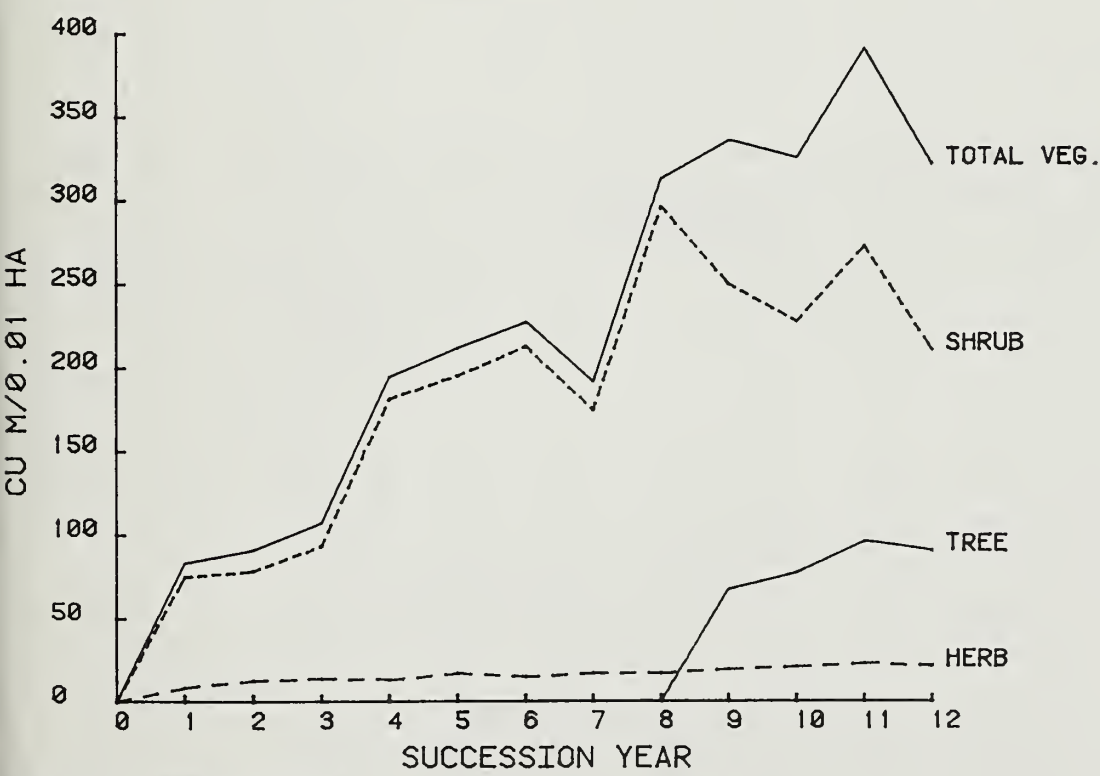


Figure 15-2.—Vegetative volume.

Table 15-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 15-3

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
BEPA	--	--	--	--	--	--	--	--	14	16	18	16
PSME	--	--	--	--	--	--	--	<1	<1	1	2	1
<u>Shrub</u>												
AMAL	3	6	5	14	9	12	5	15	10	7	8	12
CESA	13	25	37	76	80	43	53	74	72	67	78	54
CEVE	--	--	--	--	--	--	--	--	--	--	<1	--
HODI	--	1	--	5	3	5	3	5	4	4	3	3
PAMY	--	2	1	2	2	3	3	8	8	7	12	16
ROGY	---	<1	1	--	2	2	2	3	2	1	4	5
RUPA	5	10	16	8	15	8	13	12	9	10	12	8
SASC	35	26	24	25	22	37	40	49	31	24	30	30
SPBE	2	6	4	8	6	8	7	8	10	6	8	6
SYAL	--	--	--	--	--	1	1	--	<1	2	<1	1
VAME	--	--	--	--	--	1	1	--	2	2	2	2

Table 15-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 15-4

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
AGAL	--	2	1	2	2	2	2	2	1	--	1	1
APAN	--	1	1	--	--	--	--	--	1	1	--	1
BERE	--	--	--	--	--	--	--	--	1	--	--	--
CARU	12	15	19	14	17	16	23	22	24	18	25	23
CARO	--	1	--	1	1	3	5	2	4	--	2	2
DAGL	--	--	--	--	--	1	1	1	--	1	1	2
EPAN	5	9	8	6	9	7	9	8	7	8	8	4
ILRI	1	--	1	--	--	--	--	1	--	--	--	--
LUAR	--	--	--	1	1	--	--	--	1	1	--	--
PTAQ	2	3	5	6	6	6	4	5	8	8	8	8
THOC	--	--	--	--	--	--	--	1	2	1	1	1
XETE	--	--	--	1	1	1	2	2	2	2	2	2
Misc.	5	10	11	8	7	3	1	4	1	4	1	--



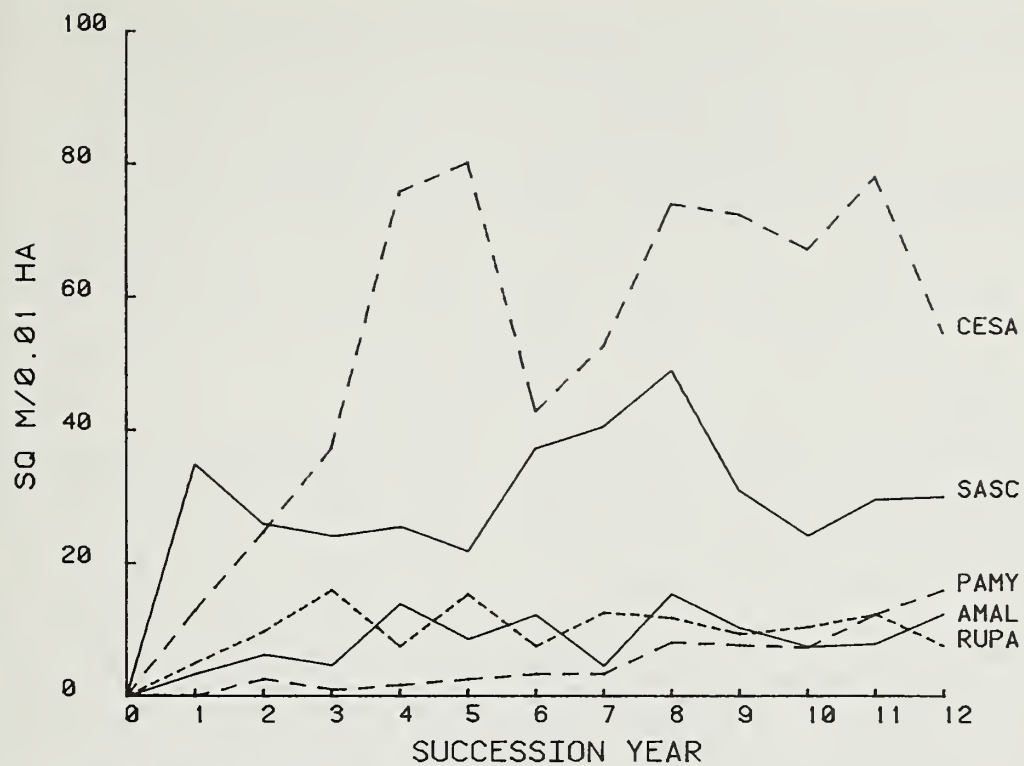


Figure 15-3.—Tree and shrub cover.

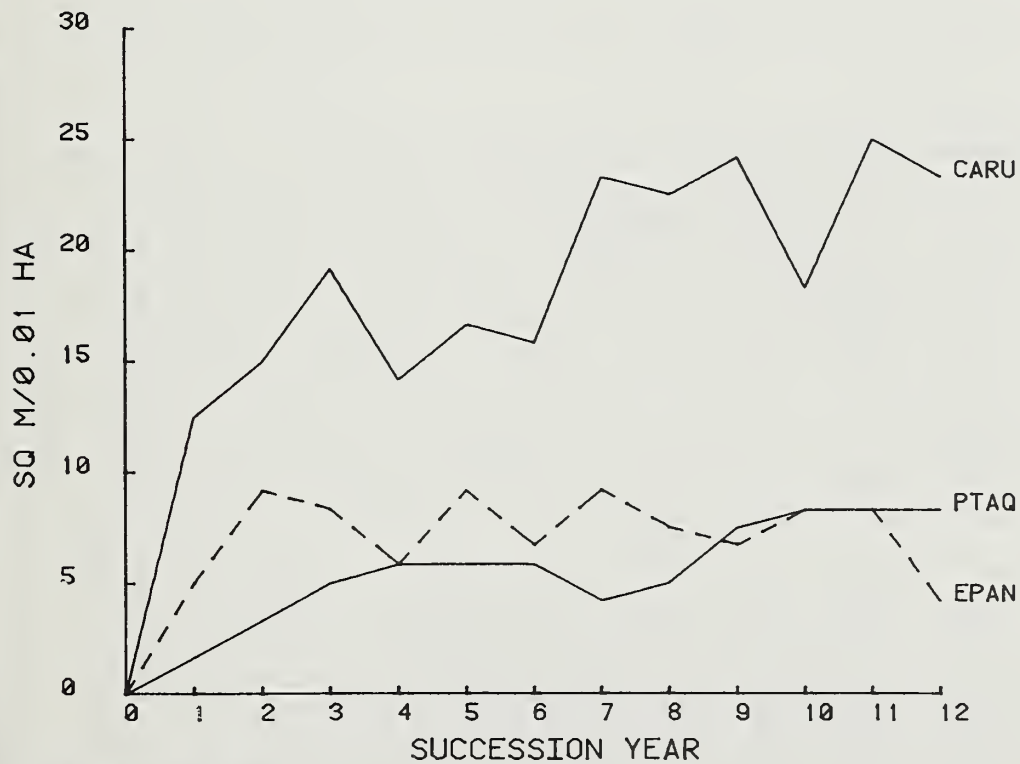


Figure 15-4.—Herb cover.

Table 15-5.--Volume development of tree and shrub components ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 15-5

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
<u>Tree</u>												
BEPA	--	--	--	--	--	--	--	--	67.0	76.4	94.2	88.3
PSME	--	--	--	--	--	--	--	0.1	.2	.9	2.0	2.1
<u>Shrub</u>												
AMAL	2.2	6.2	4.5	14.6	7.7	14.4	4.4	16.6	11.3	7.6	11.3	20.4
CESA	14.4	12.8	24.3	84.0	113.0	68.5	56.5	113.6	120.3	123.6	138.3	59.5
CEVE	--	--	--	--	--	--	--	--	--	--	.7	--
HODI	--	.9	--	9.0	5.5	10.7	6.0	9.7	8.4	7.7	6.4	6.6
PAMY	--	.2	.2	.3	.4	.8	.9	2.9	2.9	2.6	4.6	6.5
ROGY	--	.1	.3	--	.9	.9	.8	2.0	.4	.4	2.4	3.0
RUPA	.6	3.7	5.5	2.4	6.0	2.4	4.5	3.9	3.4	3.6	4.1	2.6
SASC	57.4	52.0	57.1	69.0	60.5	112.5	98.7	145.9	98.4	78.9	102.2	108.7
SPBE	.4	2.5	1.4	2.3	1.4	2.3	2.4	2.0	3.8	1.9	2.5	2.1
SYAL	--	--	--	--	--	.3	.3	--	.2	.9	.2	.8
VAME	--	--	--	--	--	.1	.2	--	.6	.4	.4	.6

Table 15-6.--Volume development of herb component ( $\text{m}^3/0.01 \text{ ha}$ ), fig. 15-6

Species	Succession year											
	1	2	3	4	5	6	7	8	9	10	11	12
AGAL	--	1.2	0.2	1.0	1.2	0.8	1.2	0.8	0.5	--	0.9	0.8
APAN	--	.1	.1	--	--	--	--	--	.2	0.2	--	.2
BERE	--	--	--	--	--	--	--	--	.1	--	--	--
CARU	6.0	4.6	5.2	4.3	4.3	4.7	7.3	6.9	7.7	5.6	9.4	8.3
CARO	--	.1	--	<.1	.1	.4	.5	.3	.7	--	.2	.2
DAGL	--	--	--	--	--	.3	.5	.3	--	.3	.7	.8
EPAN	1.5	3.7	3.4	2.8	6.0	4.4	4.2	3.9	3.9	5.8	4.7	3.8
ILRI	<.1	--	.1	--	--	--	--	.5	--	--	--	--
LUAR	--	--	--	.2	.1	--	--	--	.2	.2	--	--
PTAQ	.3	1.3	2.7	3.2	3.5	3.3	2.6	2.6	5.1	6.7	5.6	6.3
THOC	--	--	--	--	--	--	--	.3	.5	.2	.3	.3
XETE	--	--	--	.2	.2	.2	.4	.5	.5	.9	.6	.5
Misc.	.8	1.8	2.1	1.5	1.4	.7	.2	.8	.1	1.1	.2	--

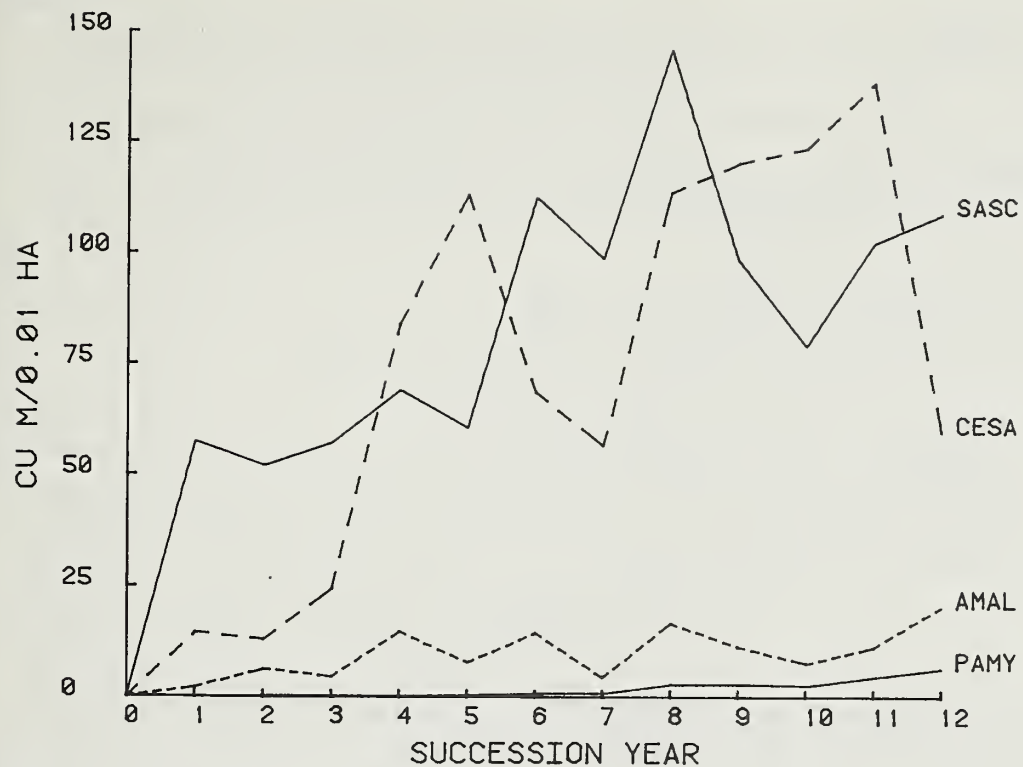


Figure 15-5.—Tree and shrub volume.

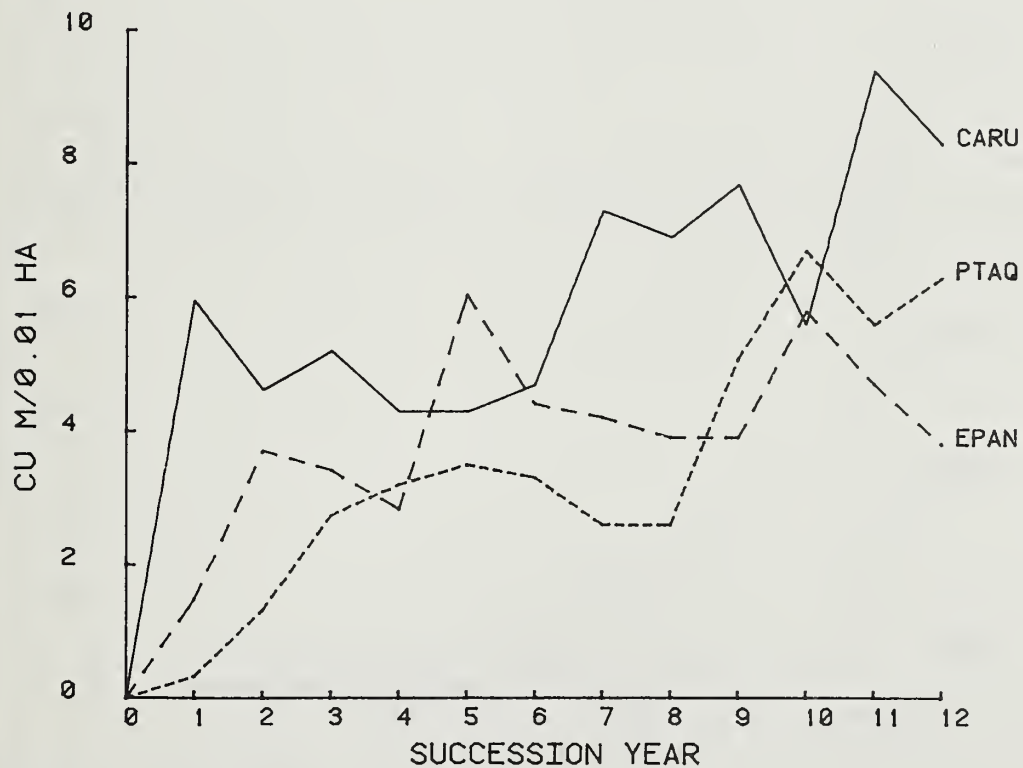


Figure 15-6.—Herb volume.

Site location and description: SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 30, T. 60 N., R. 2 W., BM; Elevation: 4,250 ft; Exposure: Southeast (Az. 115°); Slope: 25%

Forest cover type and tree size class: Western white pine immature poletimber, 70 through 100% crown cover

Reconstructed prefire forest stand:

Tree component: Conifer density: 29.2/0.01 ha; Average d.b.h.: 13.7 cm; Basal area: 5,477 cm<sup>2</sup>/0.01 ha

Shrub component: ALSI 71%, SASC 29% (Shrub density: 2.8/0.01 ha);

Other species present: AMAL, LOU, PAMY, RUPA

Disturbance treatment:

Wildfire: September 1, 1967 (1930-2200 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: -- mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 16-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 16-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	7	--	25	37	49	64	73	96	87	105
Shrub	1	7	12	16	36	21	--	40	28	32	26	43	69	61	103
Herb	17	27	41	33	36	26	--	39	52	51	48	62	58	73	62
Total veg.	17	35	53	49	72	54	--	104	118	131	138	177	224	221	270

Table 16-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 16-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	3.0	--	22.7	46.3	77.6	125.6	170.6	276.2	285.4	383.6
Shrub	0.1	2.6	5.2	8.1	31.8	25.6	--	56.2	42.2	37.6	30.1	62.1	120.0	116.0	235.1
Herb	3.0	10.0	15.2	13.8	16.1	10.4	--	14.0	23.1	25.6	26.4	36.2	32.6	60.8	50.2
Total veg.	3.1	12.6	20.4	21.9	47.9	39.0	--	92.9	111.7	140.8	182.1	268.8	428.8	462.1	669.0



Figure 16-1.—Vegetative cover.

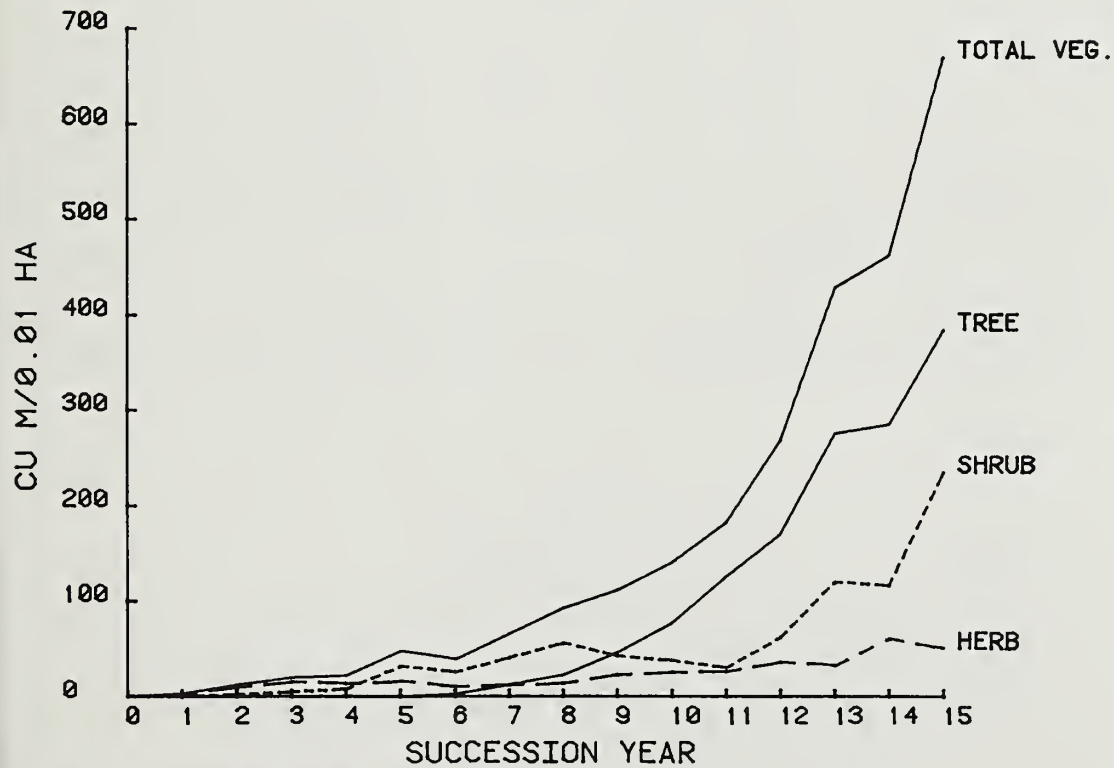


Figure 16-2.—Vegetative volume.

Table 16-3.--Cover development of tree and shrub components ( $m^2/0.01$  ha or %), fig. 16-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PIEN	--	--	--	--	--	--	--	1	1	1	1	2	3	3	3
PICO	--	--	--	--	--	7	--	24	37	47	63	71	94	84	101
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1
<u>Shrub</u>															
ALSI	--	--	--	--	7	8	--	15	12	11	12	22	40	40	75
PAMY	--	--	--	--	--	--	--	--	--	--	1	1	1	2	1
RIVI	--	--	--	--	--	--	--	1	1	1	1	1	1	1	2
RUPA	--	--	--	--	--	--	--	1	2	2	2	1	3	4	4
SASC	1	7	12	16	29	12	--	23	14	18	10	18	23	14	21

Table 16-4.--Cover development of herb component ( $m^2/0.01$  ha or %), fig. 16-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	1	--	7	9	4	2	1	2	1	--
APAN	--	--	--	--	--	--	--	--	--	--	--	3	--	2	--
EPAN	14	20	27	23	25	13	--	12	15	12	10	11	8	6	5
GEBI	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--
HIAL	--	--	--	--	--	--	--	1	2	2	4	6	8	9	11
PTAQ	--	6	8	6	6	9	--	16	26	30	29	40	39	55	46
PYPI	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--
XETE	--	--	--	--	--	--	--	--	--	1	1	1	1	1	1
Misc.	2	1	5	4	5	2	--	3	1	2	2	--	--	--	--

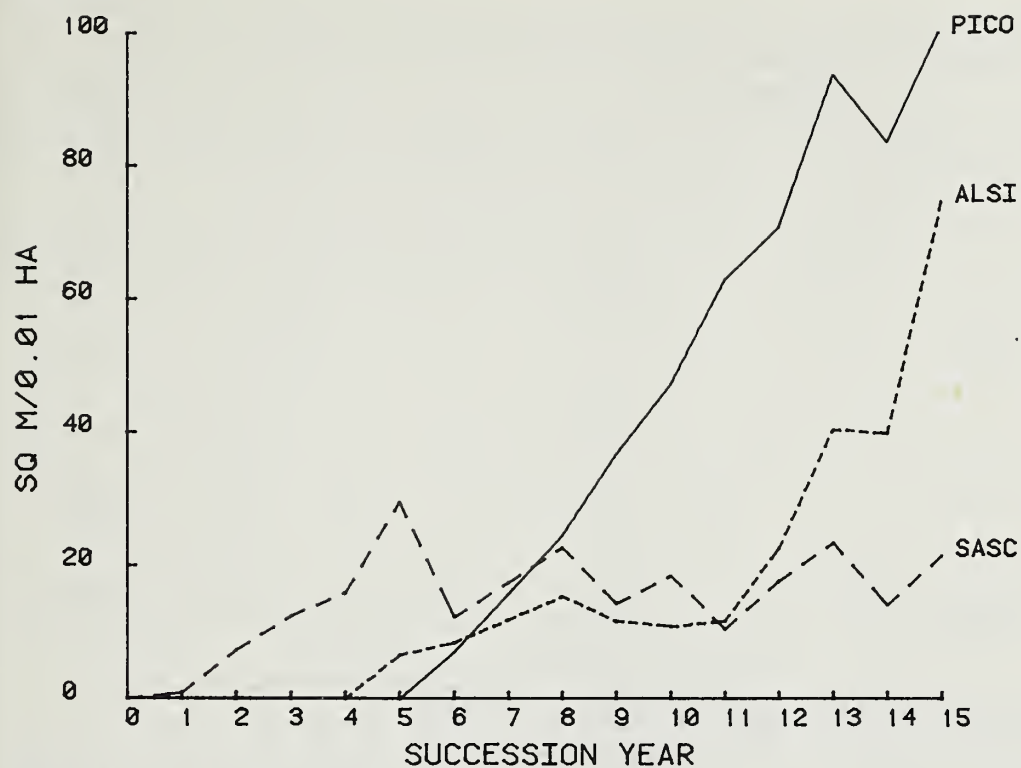


Figure 16-3.—Tree and shrub cover.

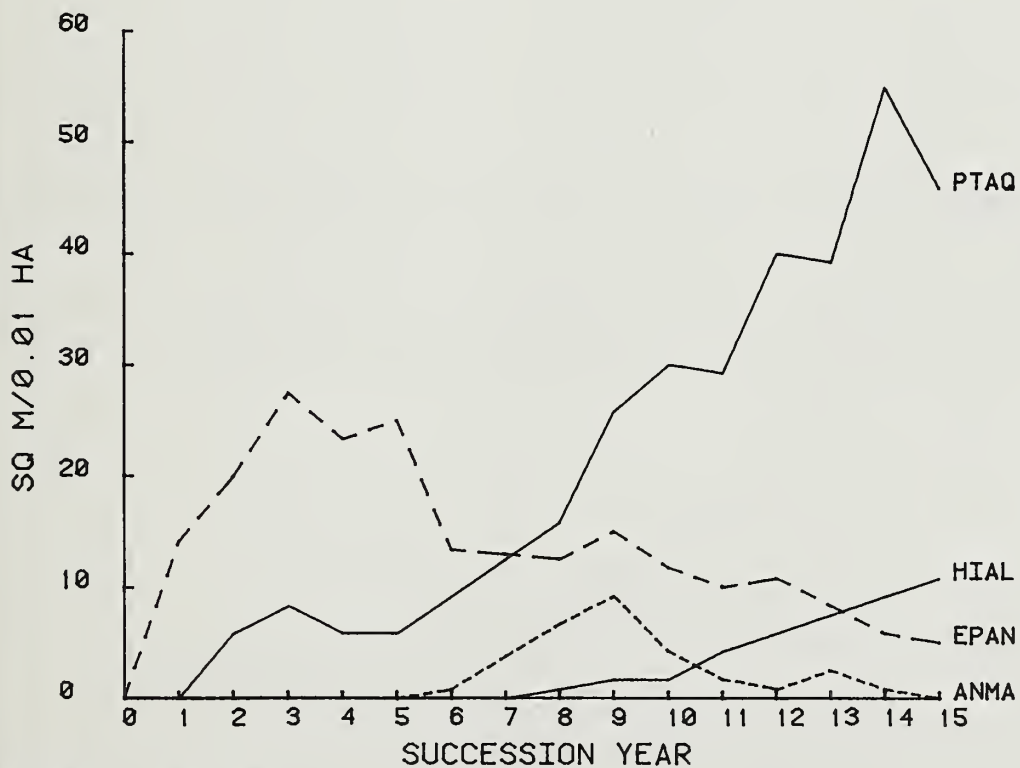


Figure 16-4.—Herb cover.



Table 16-5.--Volume development of tree and shrub components ( $m^3/0.01$  ha), fig. 16-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
PIEN	--	--	--	--	--	--	--	0.4	0.5	1.0	1.0	2.1	3.3	3.7	4.5
PICO	--	--	--	--	--	3.0	--	22.3	45.9	76.6	124.6	168.5	272.9	281.1	378.6
PIMO	--	--	--	--	--	--	--	--	--	--	--	--	--	.6	.5
<u>Shrub</u>															
ALSI	--	--	--	--	10.8	17.0	--	38.5	30.2	21.1	18.5	42.6	87.9	89.9	197.4
PAMY	--	--	--	--	--	--	--	--	--	--	.3	.4	.8	.9	.5
RIVI	--	--	--	--	--	--	--	.5	.5	.7	1.1	.6	.9	1.3	1.9
RUPA	--	--	--	--	--	--	--	.1	.3	.5	.3	.2	1.2	1.6	1.8
SASC	0.1	2.6	5.2	8.1	21.0	8.6	--	17.1	11.2	15.3	9.8	18.3	29.2	22.3	33.5

Table 16-6.--Volume development of herb component ( $m^3/0.01$  ha), fig. 16-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	--	0.4	--	2.1	2.7	1.4	0.8	0.2	0.8	0.2	--
APAN	--	--	--	--	--	--	--	--	--	--	--	1.2	--	.6	--
EPAN	2.7	7.5	11.2	10.9	12.9	6.6	--	5.7	7.9	8.4	6.7	7.3	5.6	3.8	3.9
GEBI	--	.2	--	--	--	--	--	--	--	--	--	--	--	--	--
HIAL	--	--	--	--	--	--	--	.1	.1	.4	2.1	1.0	.4	3.7	2.4
PTAQ	--	2.1	2.8	2.0	1.8	2.9	--	5.3	12.0	14.8	16.0	26.3	25.7	52.4	43.7
PYPI	--	--	--	--	--	--	--	--	--	<.1	.2	--	--	--	--
XETE	--	--	--	--	--	--	--	--	--	.2	.2	.1	.1	<.1	.3
Misc.	.2	.2	1.3	.9	1.4	.5	--	.8	.4	.3	.4	--	--	--	--

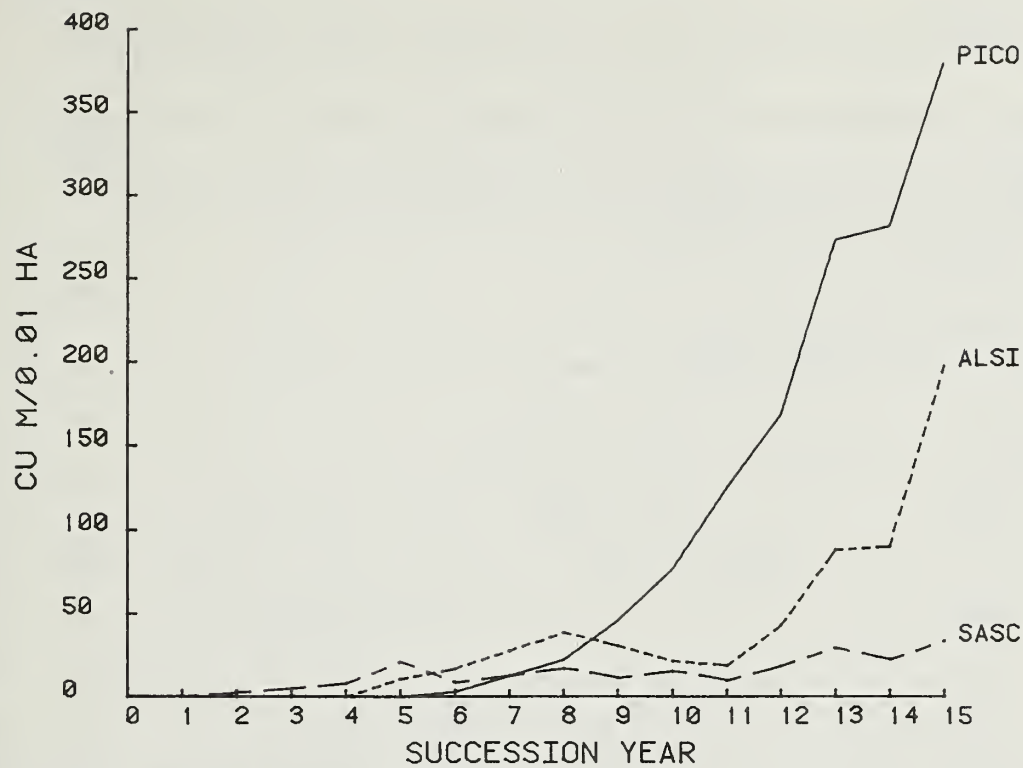


Figure 16-5.—Tree and shrub volume.



Figure 16-6.—Herb volume.

Site location and description: SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 29, T. 60 N., R. 2 W., BM; Elevation: 3,800 ft; Exposure: North (Az. 340°); Slope: 40%

Forest cover type and tree size class: Western white pine immature poletimber, 70 through 100% crown coverage

Reconstructed prefire forest stand:

Tree component: Conifer density: 32.0/0.01 ha; Average d.b.h.: 8.2 cm; Basal area: 2,384 cm<sup>2</sup>/0.01 ha

Shrub component: SASC 100% (Shrub density: 3.6/0.01 ha);

Other species present: AGL, PAMY, ROGY, RUPA, SPBE

Disturbance treatment:

Wildfire: September 2, 1967; Succession year 1:1968;

Fire intensity: -- Btu/sec/ft; Rate of spread: -- mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 17-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 17-1

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	<1	--	2	4	5	8	15	--	21	27
Shrub	9	28	35	36	31	36	--	70	40	47	47	47	--	150	155
Herb	36	44	31	30	33	27	--	38	42	48	45	52	--	54	65
Total veg.	45	72	65	66	64	63	--	110	86	100	99	114	--	225	247

Table 17-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 17-2

Life form component	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree	--	--	--	--	--	0.1	--	1.5	3.2	5.9	9.4	20.5	--	43.9	67.0
Shrub	2.4	22.7	36.3	38.3	33.8	58.1	--	99.5	53.6	60.4	56.4	59.8	--	295.5	335.8
Herb	9.7	21.7	16.7	14.6	16.3	13.1	--	13.7	16.8	19.5	18.9	20.4	--	23.6	27.6
Total veg.	12.2	44.4	53.0	52.9	50.1	71.4	--	114.7	73.7	85.7	84.7	100.7	--	363.0	430.4

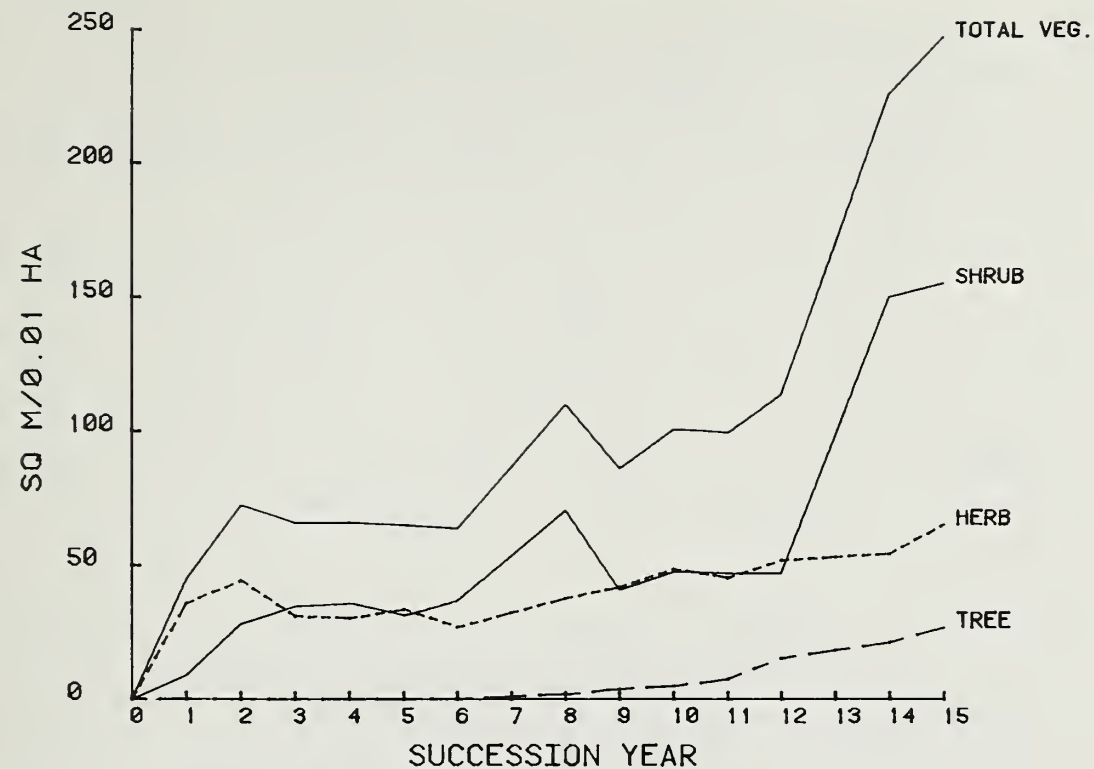


Figure 17-1.—Vegetative cover.

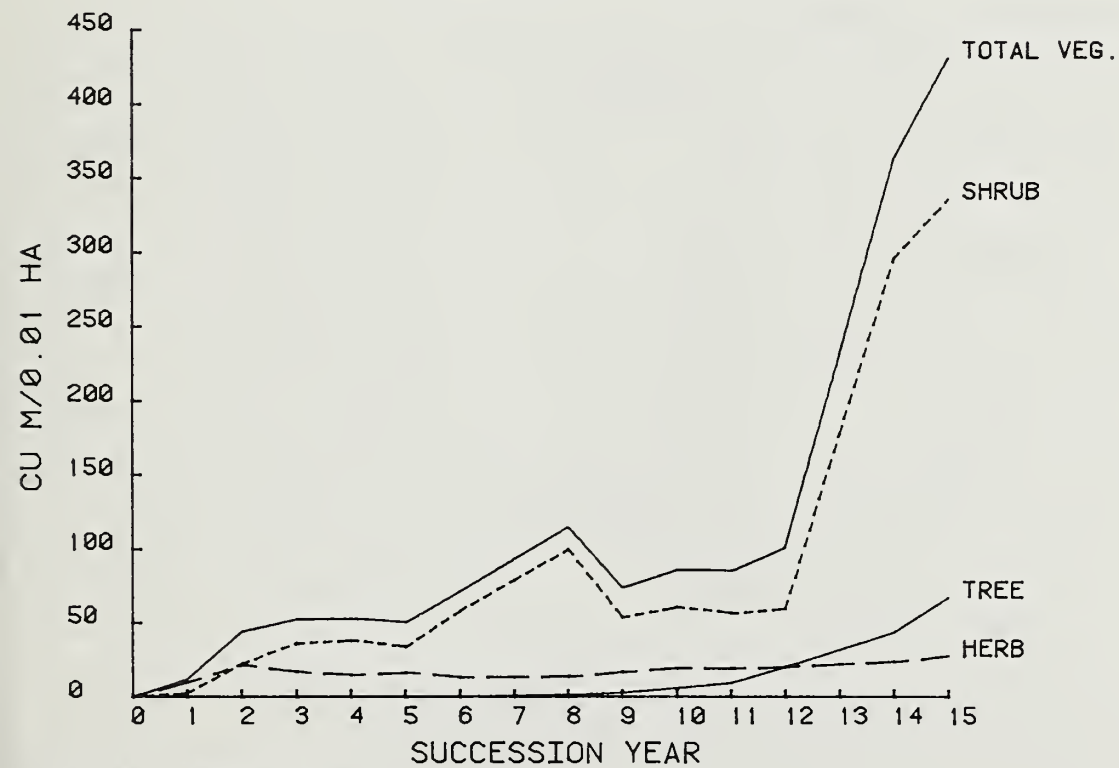


Figure 17-2.—Vegetative volume.

Table 17-3.--Cover development of tree and shrub components (m<sup>2</sup>/0.01 ha or %), fig. 17-3

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
ABGR	--	--	--	--	--	--	--	--	1	--	2	5	--	6	7
BEPA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1
LAOC	--	--	--	--	--	--	--	--	--	--	--	<1	--	1	1
PIEN	--	--	--	--	--	--	--	<1	1	1	1	2	--	2	2
PICO	--	--	--	--	--	<1	--	2	2	4	4	5	--	9	11
PIMO	--	--	--	--	--	--	--	--	--	1	1	2	--	3	4
POTRI	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1
PSME	--	--	--	--	--	--	--	--	--	--	--	<1	--	1	1
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	1	9	12	--	86	93
PAMY	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1
RUPA	3	7	6	2	5	4	--	12	10	16	11	10	--	16	27
SASC	6	21	28	33	26	32	--	59	31	31	25	25	--	46	34
SPBE	--	--	--	--	--	--	--	--	--	<1	1	--	--	1	--

Table 17-4.--Cover development of herb component (m<sup>2</sup>/0.01 ha or %), fig. 17-4

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	1	1	--	1	5	5	3	2	--	1	--
ARLA	--	--	--	--	--	--	--	2	2	6	8	11	--	12	19
CAMI	--	--	--	--	--	--	--	--	--	--	--	1	--	2	2
CLUN	--	--	--	--	--	--	--	--	--	1	1	2	--	2	3
EPAN	33	39	29	19	25	17	--	12	15	8	8	7	--	6	4
HIAL	--	--	--	--	--	--	--	--	2	2	2	3	--	2	2
LICO	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
PTAQ	--	4	1	8	8	7	--	17	15	22	18	24	--	28	32
Misc.	2	1	1	2	--	2	--	6	2	4	3	2	--	1	--

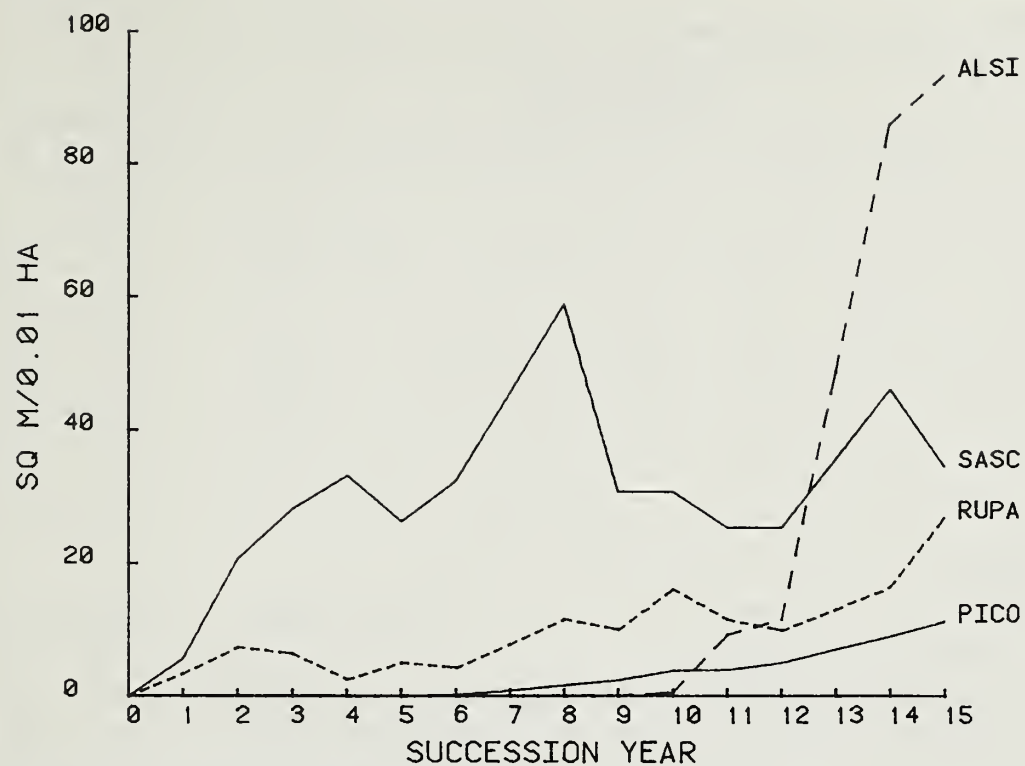


Figure 17-3.—Tree and shrub cover.

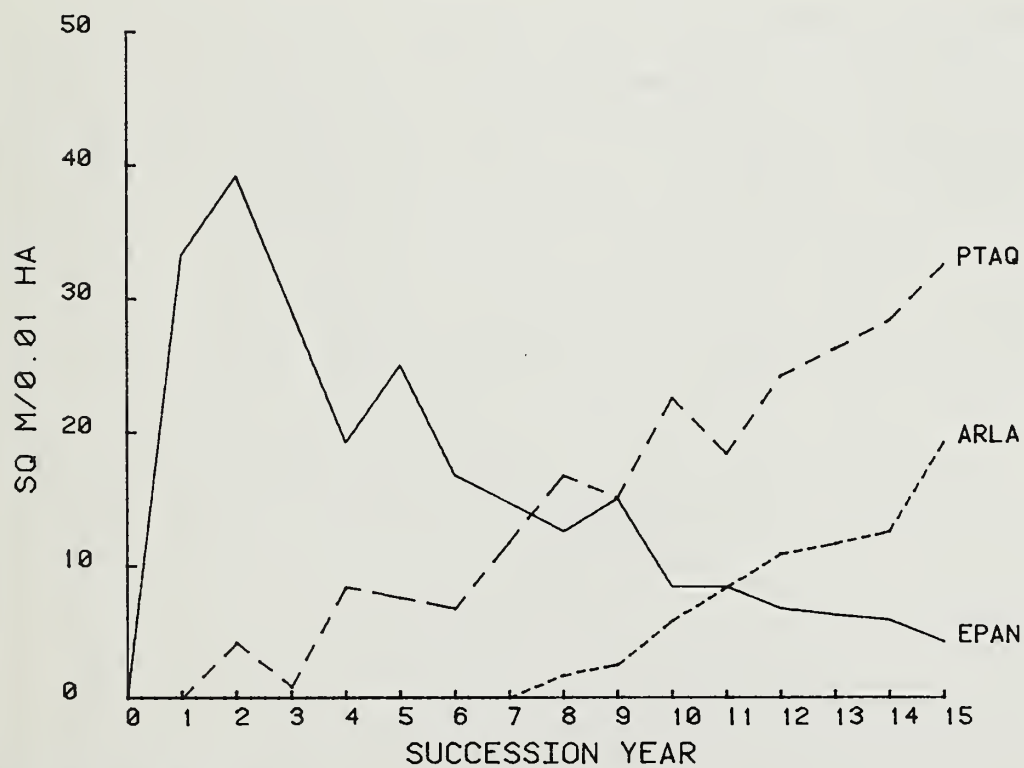


Figure 17-4.—Herb cover.

Table 17-5.--Volume development of tree and shrub components (m<sup>3</sup>/0.01 ha), fig. 17-5

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>Tree</u>															
ABGR	--	--	--	--	--	--	--	--	0.4	--	1.0	5.0	--	7.5	10.4
BEPA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.5
LAOC	--	--	--	--	--	--	--	--	--	--	--	.2	--	1.6	2.7
PIEN	--	--	--	--	--	--	--	0.1	.3	0.3	.5	1.5	--	2.0	2.3
PICO	--	--	--	--	--	0.1	--	1.3	2.5	5.4	7.4	12.0	--	27.1	40.4
PIMO	--	--	--	--	--	--	--	--	--	.3	.5	1.6	--	5.2	9.0
POTRI	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<.1
PSME	--	--	--	--	--	--	--	--	--	--	--	.1	--	.4	.6
<u>Shrub</u>															
ALSI	--	--	--	--	--	--	--	--	--	.5	11.2	19.3	--	214.0	260.7
PAMY	--	--	--	--	--	--	--	--	--	--	--	--	--	.3	.3
RUPA	0.6	2.6	2.8	0.4	2.1	2.5	--	6.0	4.2	7.5	5.1	4.3	--	10.5	16.1
SASC	1.8	20.1	33.5	37.8	31.7	55.7	--	93.5	49.4	52.4	39.7	36.2	--	70.4	58.7
SPBE	--	--	--	--	--	--	--	--	--	<.1	.3	--	--	.3	--

Table 17-6.--Volume development of herb component (m<sup>3</sup>/0.01 ha), fig. 17-6

Species	Succession year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ANMA	--	--	--	--	0.3	0.4	--	0.4	1.7	1.7	1.4	0.9	--	0.3	--
ARLA	--	--	--	--	--	--	--	.2	.2	.5	1.1	1.2	--	2.1	2.9
CAMI	--	--	--	--	--	--	--	--	--	--	--	.4	--	.3	1.3
CLUN	--	--	--	--	--	--	--	--	--	<.1	<.1	.2	--	.1	.2
EPAN	9.4	19.6	16.1	9.9	13.7	9.6	--	4.8	7.4	4.1	4.3	3.9	--	3.0	2.6
HIAL	--	--	--	--	--	--	--	--	.4	.4	1.1	.8	--	.8	.1
LICO	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.8
PTAQ	--	1.9	.3	3.9	2.3	2.4	--	7.2	6.4	11.7	10.1	12.6	--	16.8	19.8
Misc.	.3	.2	.3	.8	--	.7	--	1.2	.8	1.0	.8	.5	--	.2	--



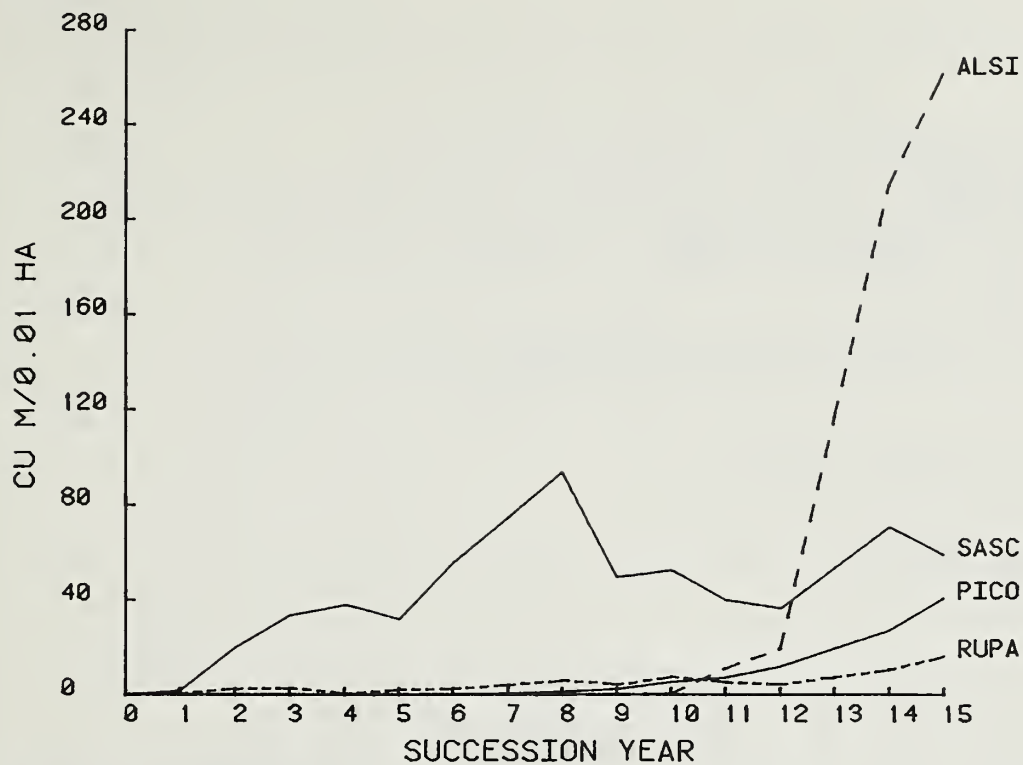


Figure 17-5.—Tree and shrub volume.

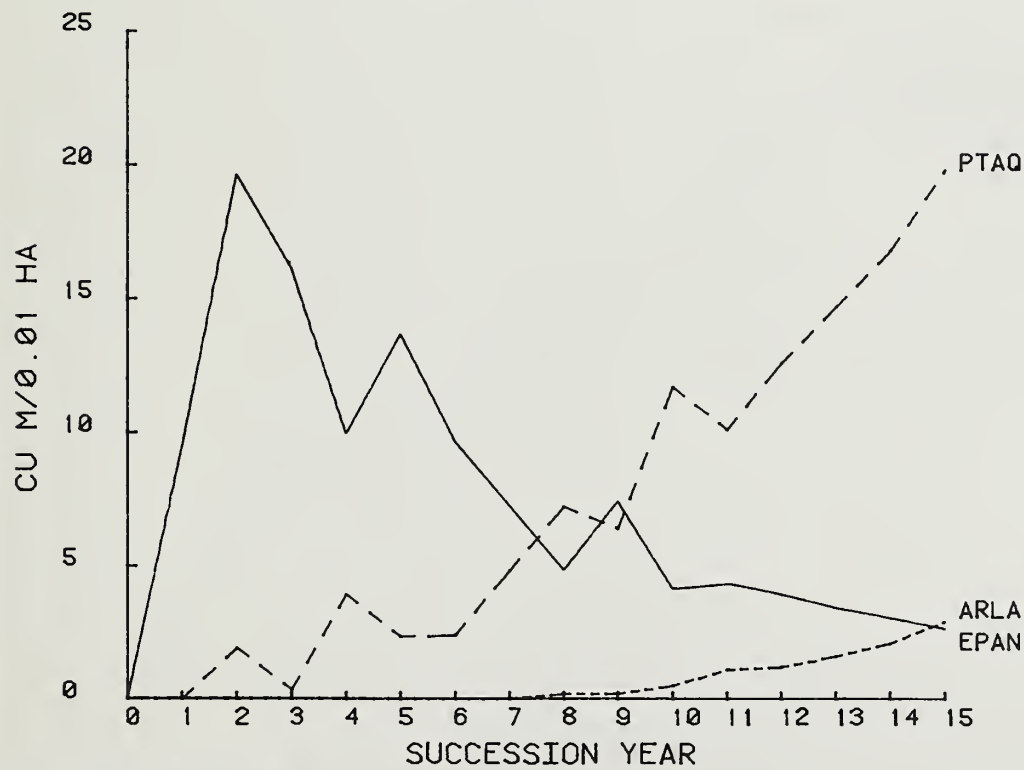


Figure 17-6.—Herb volume.

Site location and description: SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 20, T. 60 N., R. 2 W., BM; Elevation: 3,450 ft; Exposure: South (Az. 165°); Slope: 25%

Forest cover type and tree size class: Douglas-fir nonstocked, <10% crown cover

Reconstructed prefire forest stand:

Tree component: Conifer density: 1.6/0.01 ha; Average d.b.h.: 6.2 cm; Basal area: 54 cm<sup>2</sup>/0.01 ha

Shrub component: CESA 24%, PREM 32%, ROGY 1%, SASC 43% (Shrub density: 53.6/0.01 ha);

Other species present: AMAL, PAMY, RUPA, VAME

Disturbance treatment:

Wildfire: September 1, 1967 (1930 hrs); Succession year 1:1968;

Fire intensity: 3,400 to 22,500 Btu/sec/ft; Rate of spread: 1 to 6 mi/h;

Fire severity: R-N index: 5-M; Overstory crown foliage: Consumed; Litter-duff: Consumed

Table 18-1.--Successional development of vegetative cover (m<sup>2</sup>/0.01 ha or %), fig. 18-1

Life form component	Succession year					
	1	2	3	4	5	6
Tree	--	--	--	--	--	--
Shrub	63	66	96	124	160	114
Herb	32	46	36	37	35	32
Total veg.	95	112	132	162	195	147

Table 18-2.--Successional development of vegetative volume (m<sup>3</sup>/0.01 ha), fig. 18-2

Life form component	Succession year					
	1	2	3	4	5	6
Tree	--	--	--	--	--	--
Shrub	77.0	74.1	119.2	156.0	211.8	203.7
Herb	11.5	24.0	17.7	18.9	19.4	18.4
Total veg.	88.4	98.1	136.9	174.9	231.2	222.1

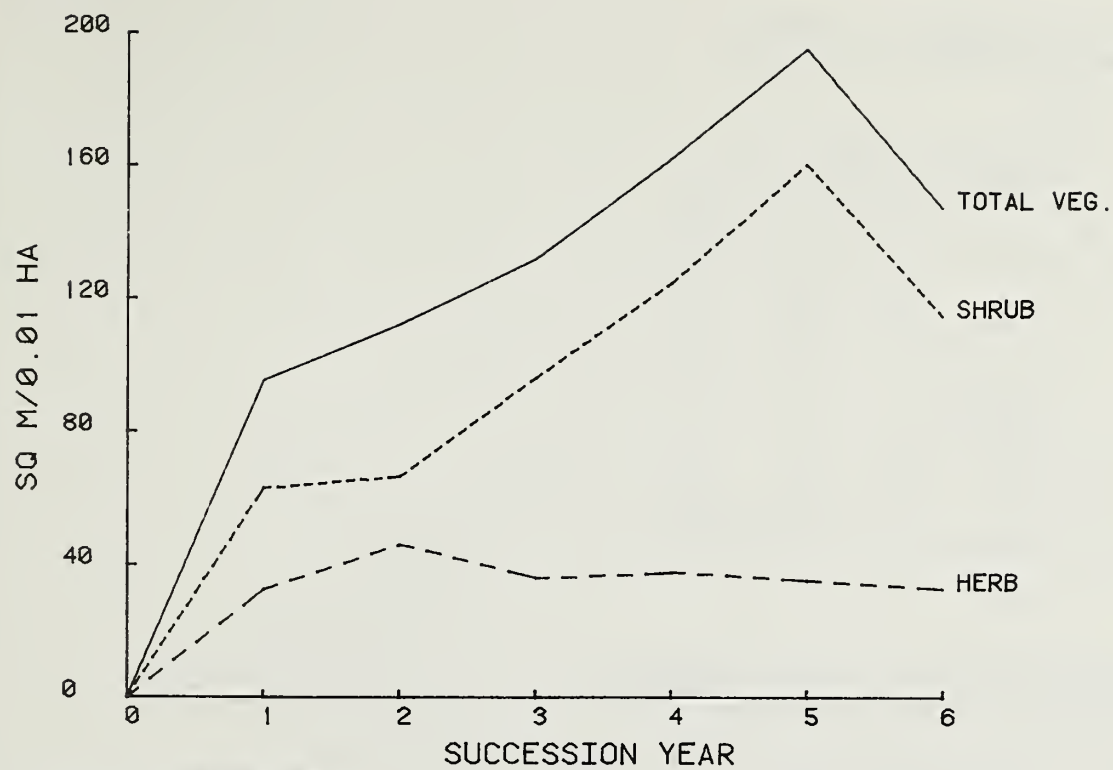


Figure 18-1.—Vegetative cover.

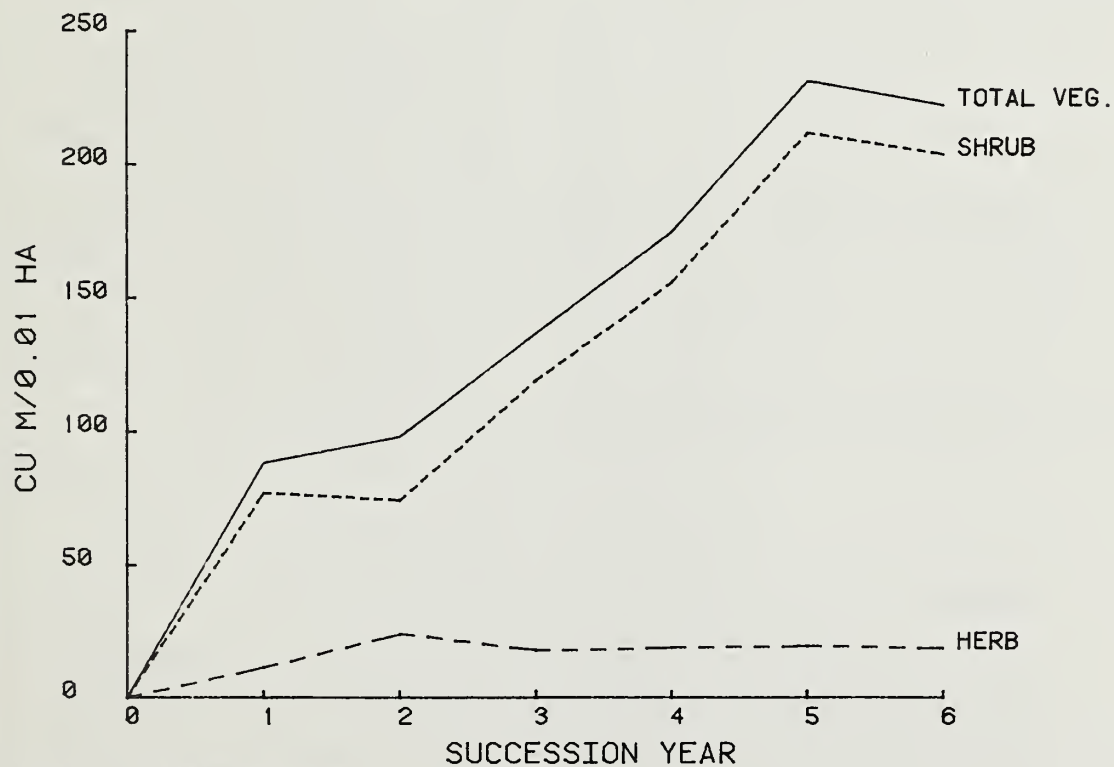


Figure 18-2.—Vegetative volume.

Table 18-3.--Cover development of shrub  
component ( $\text{m}^2/0.01 \text{ ha}$  or %),  
fig. 18-3

Species	Succession year					
	1	2	3	4	5	6
CESA	5	15	32	69	95	45
PREM	7	6	6	3	4	9
ROGY	2	2	2	2	3	2
RUPA	14	20	21	22	31	16
SASC	35	24	35	28	27	42

Table 18-4.--Cover development of herb component  
( $\text{m}^2/0.01 \text{ ha}$  or %), fig. 18-4

Species	Succession year					
	1	2	3	4	5	6
APAN	1	1	1	1	3	1
CARU	--	--	2	1	1	1
CLUN	--	--	--	--	1	--
DIHO	1	1	--	2	2	2
EPAN	6	5	3	4	3	4
PTAQ	20	30	22	23	22	22
TRRE	--	4	--	--	--	--
Misc.	5	5	8	6	2	3

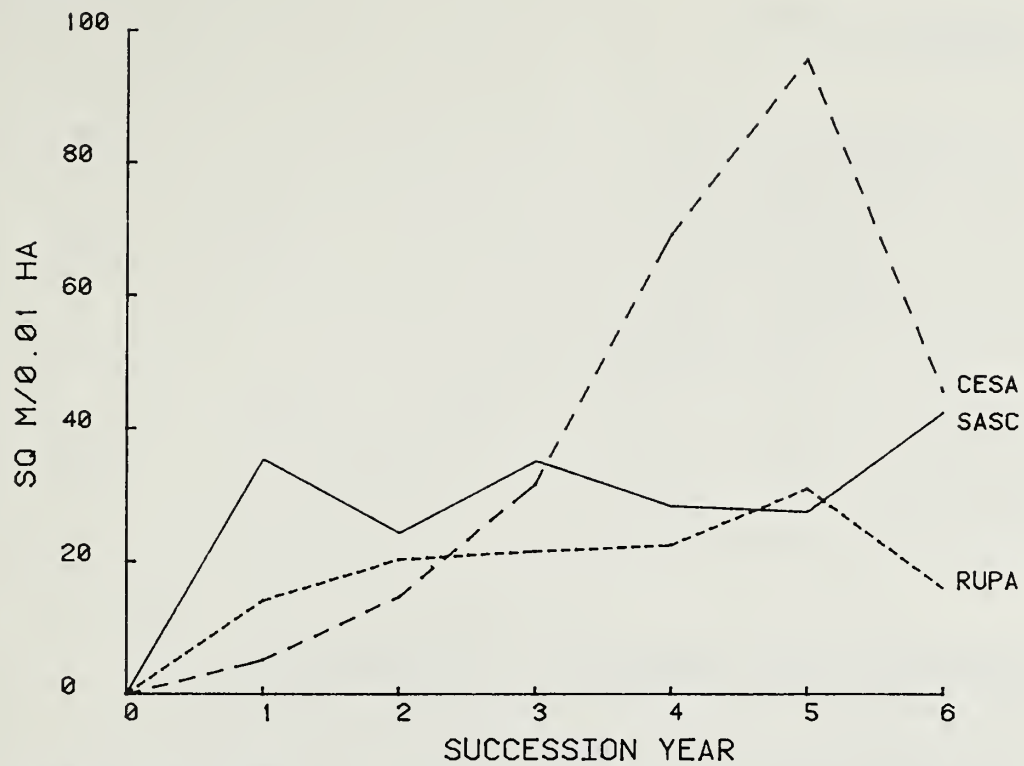


Figure 18-3.—Shrub cover.

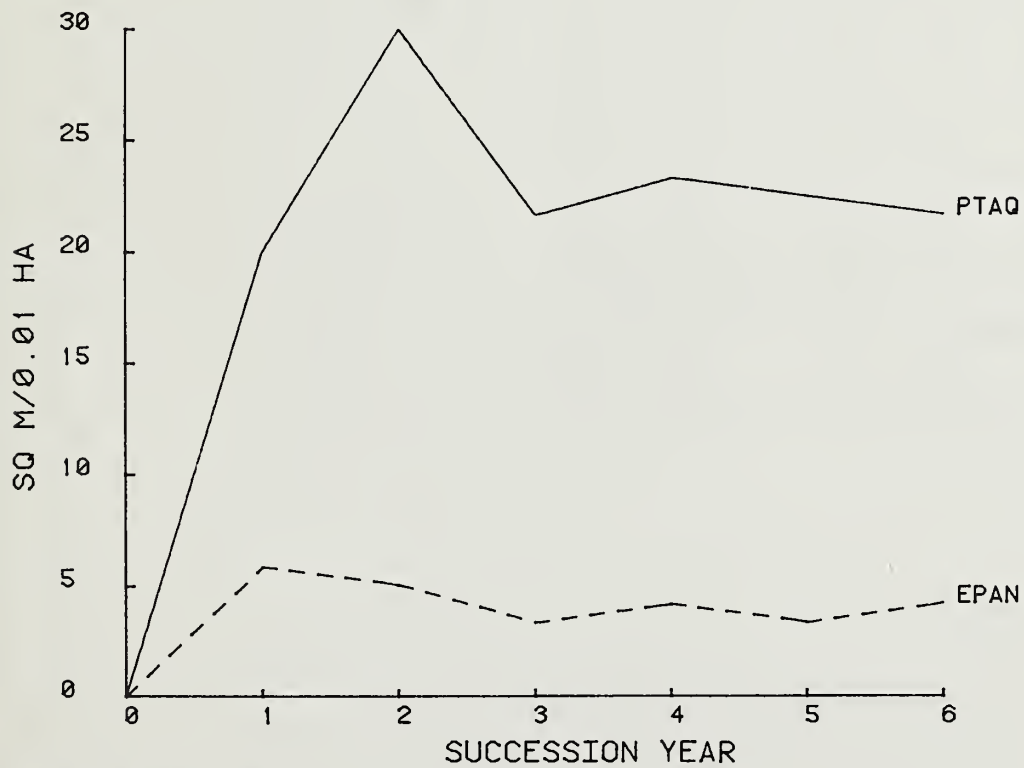


Figure 18-4.—Herb cover.

Table 18-5.--Volume development of shrub  
component ( $\text{m}^3/0.01 \text{ ha}$ ),  
fig. 18-5

Species	Succession year					
	1	2	3	4	5	6
CESA	1.7	8.8	22.8	68.1	118.7	44.5
PREM	5.3	5.1	5.0	3.3	3.7	11.6
ROGY	.3	.4	.6	.5	1.1	.8
RUPA	6.6	6.6	8.4	8.5	10.9	4.5
SASC	63.1	53.0	82.3	75.5	77.3	142.2

Table 18-6.--Volume development of herb component  
( $\text{m}^3/0.01 \text{ ha}$ ), fig. 18-6

Species	Succession year					
	1	2	3	4	5	6
APAN	0.1	0.2	0.3	0.2	1.3	0.2
CARU	--	--	.5	.2	.3	.3
CLUN	--	--	--	--	<.1	--
DIHO	.1	.2	--	.4	.3	.3
EPAN	1.4	2.2	1.5	1.9	1.9	2.4
PTAQ	9.2	19.8	13.1	14.5	14.7	13.9
TRRE	--	.4	--	--	--	--
Misc.	.7	1.2	2.3	1.6	.8	1.2

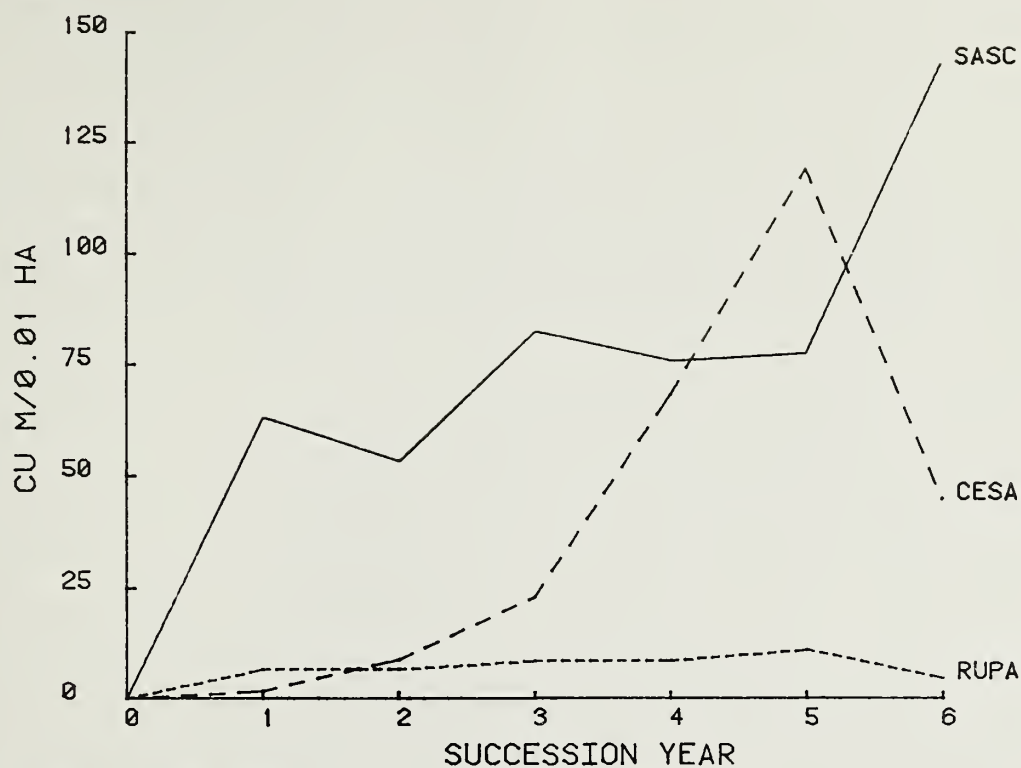


Figure 18-5.—Shrub volume.

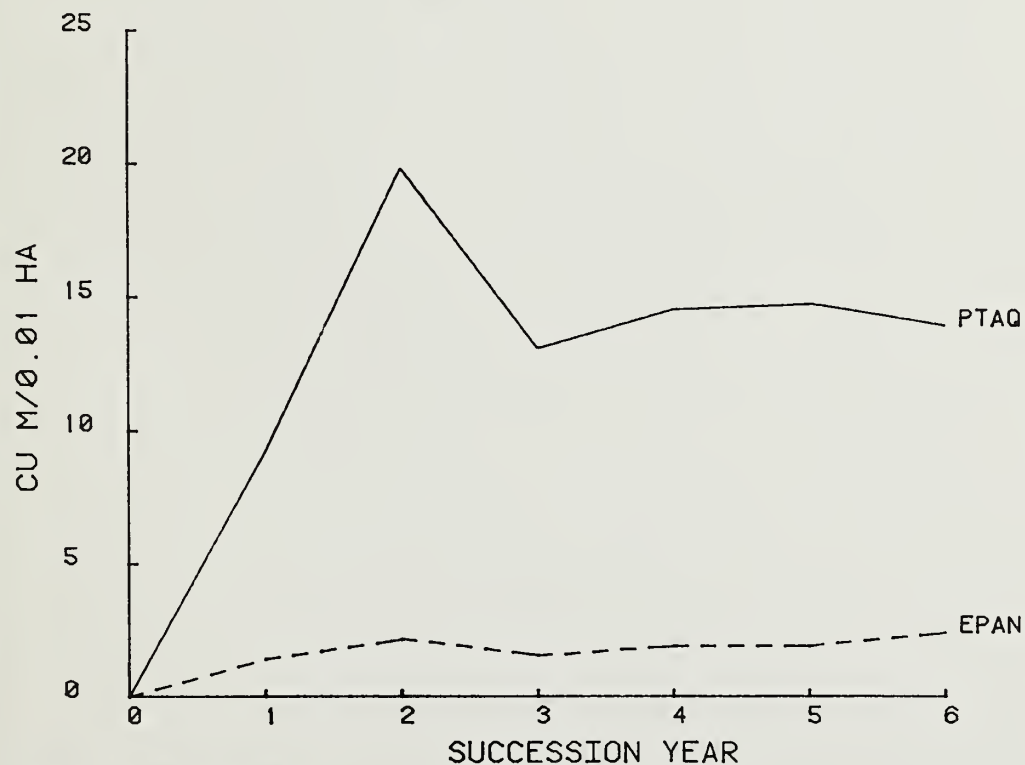


Figure 18-6.—Herb volume.









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Stickney, Peter F. Data base for early postfire succession on the Sundance Burn, northern Idaho. General Technical Report INT-189. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station; 1985. 121 p.

Provides baseline data on secondary plant succession and the development of plant species and life forms for the initial 6 to 15 years following a stand-replacing forest fire in the western redcedar-western hemlock type in northern Idaho. Information pertaining to plant cover ( $m^2/0.01$  ha) and volume of space occupied ( $m^3/0.01$  ha) is useful for evaluating forest species response to severe fire treatment and for analytical use in wildlife habitat and fire management planning, modeling early seral forest development, and other forest management applications.

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**KEYWORDS:** secondary plant succession, fire succession, forest succession, initial successional stages, successional data base, western redcedar type, western hemlock type

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